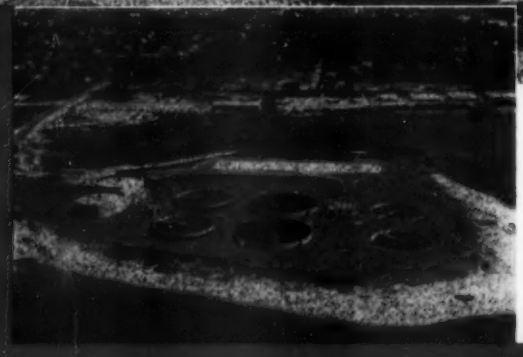
The American City

APRIL 1955



The design of modern water and sewage treatment plants has become both a science and an art, exemplified by the two plants shown here. The plant above serves Bethlehem, Pa.; the other, Panama City, Fla. Both use biofiltration as the method of treatment.

A story on modernization of water and sewage treatment plants appears on page 97 of this issue.

Gets extra years of service from old asphalt street

An important advantage of asphalt paving is the speed and economy with which its life can be prolonged, after it has given years of satisfactory service. The city of Mansfield, Ohio, demonstrates this desirable feature of asphalt on the North Main Street paving project shown here.

For years the asphalt pavement on this Mansfield thoroughfare had served the city's heaviest local traffic, in addition to the through traffic of State Route 13. Last year, a new plant-mixed Texaco Asphaltic Concrete pavement, consisting of two courses having a combined thickness of 2¾ inches, was laid over the old asphalt pavement. Because of the perfect bond established between the new and the old asphalt courses, a homogeneous pavement is obtained, which will withstand North Main Street traffic for years to come with a minimum of upkeep.

The paving problem of your own city may involve the resurfacing of old asphalt, cement concrete or other pavements, the construction of a new expressway, or the low-cost surfacing of secondary streets. Whatever your problem, Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer municipal officials a wide choice of street improvement types, which vary in durability and cost. Helpful information concerning all of these asphalt types is supplied in two free booklets which you can secure without obligation by writing our nearest office.

Adding a new 2¾-inch Texaco Asphaltic Concrete surface to the old asphalt pavement on North Main Street means many extra years of service for Mansfield, Ohio, traffic.

Contractor
MANSFIELD ASPHALT PAVING CO.
Mansfield, O.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO
REG. T. M.

TEXACO ASPHALT

APRIL 1955

The American City

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BOTH PENNSYLVANIA AND FLORIDA have demonstrated aggressive leadership in protecting their water resources and improving municipal sanitation by the adequate treatment of sewage and industrial wastes. The plants at Bethlehem, Pa., and at Panama City, Fla., typify this work.

The Bethlehem plant serves an area population of 100,000. Designed to receive and treat 12,500,000 gallons daily, it uses the single-stage biofiltration treatment with separate sludge digestion followed by sludge drying or incineration. Its principal equipment includes two 18-foot Dorr Detritors, four 135-foot Dorr clarifiers, and four 120-foot trickling filters with Dorr distributors. It also has two 65-foot Multidigestion systems. The installation was designed by Morris Knowles, Inc., consulting engineers, Pittsburgh, Pa.

The Panama City plant can treat 3,000,000 gallons daily and consists principally of two Dorr primary clarifiers, each 60 feet in diameter, two trickling filters with Dorrco distributors, each 85 feet in diameter, and two 60-foot Dorr secondary clarifiers. This plant was designed by Smith and Gillespie, consulting engineers, of Jacksonville, Fla., and was constructed by Marvin R. Boyce, Clearwater, Fla., under a construction-manager contract.

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The Telephone Pole That Became a Memorial

The cottage on Lincoln Street in Portland, Oregon, is shaded by graceful trees and covered with ivy.

Many years ago, A. H. Feldman and his wife remodeled the house to fit their dreams ...and set out slips of ivy around it. And when their son, Danny, came along, he, too, liked to watch things grow. One day, when he was only nine, he took a handful of ivy slips and planted them at the base of the telephone pole in front of the house.

Time passed ...and the ivy grew, climbing to the top of the pole. Like the ivy, Danny grew too. He finished high school, went to college. The war came along before he finished—and Danny went overseas. And there he gave his life for his country.

Not very long ago the overhead telephone lines were being removed from the poles on Lincoln Street. The ivy-covered telephone pole in front of the Feldman home was about to be taken down. Its work was done.

But, when the telephone crew arrived, Mrs. Feldman came out to meet them. "Couldn't it be left standing?" she asked. And then she told them about her son.

So the pole, although no longer needed, wasn't touched at all. At the request of the telephone company, the Portland City Council passed a special ordinance permitting the company to leave it standing. And there it is today, mantled in ivy, a living memorial to Sergeant Danny Feldman.

BELL TELEPHONE SYSTEM

CATERPILLAR ANNOUNCES THE

Sewage Sludge As a Fertilizer?

Many will be impressed with Mr. Barnes' fine account of the way he processes and sells his sewage sludge ("Grind the Sewage Sludge and Win Public Favor," January 1955, p. 108). As an old hand at the selling of sewage sludge for use as fertilizer, let me offer a few words of caution concerning the dollar-sign emphasis.

I am sure that Mr. Barnes did not intend to imply that revenue came first. He, obviously, is building good will and, at the same time, getting rid of his sludge. However, somebody is going to infer that a city is passing up a rich sort of income by not selling its sludge. Unfortunately, the dollar potential isn't there.

Fertilizer production at the Milwaukee plant was no afterthought. It was a part of the original design, even though sewage treatment and purification were the first considerations. The Milwaukee plant uses fine screens to remove bits of paper, matches, and other substances of no fertilizing value. The drying system is different, also. It is the only one that produces a fertilizer of low dust content.

These are only two reasons why Milorganite is tops as a natural all-organic fertilizer, derived from dried activated sludge. Its quarter-century record of outstanding performance is a real achievement. Those who use Milorganite as a principal source of nitrogen need not worry about trace elements. Milorganite has enough to meet the requirements of any lawn.

A small city with a small plant would have to remove the sewage solids and dry them periodically instead of continuously. This presents a vastly different set of problems than

that confronting a large sewage-disposal operation designed to care for a rapidly expanding district on a 24-hour-per-day basis. We have a relatively strong sewage requiring thorough treatment that removes nearly 200 tons of dry solids per day. The fact that they are unusually high in organic matter aids us in turning them into a fertilizer.

Nevertheless, the other side of the ledger must be considered. We have daily problems of packaging and distributing the finished fertilizer. We have organization problems for sale and distribution of the finished product similar to that found in a private industry.

Still another consideration is the financial picture. Today we are faced with increased costs and diminished returns. A few years ago, we could recover amply the cost of producing a ton of fertilizer from the sale of this product. In the last few years, the net return has been below the cost of production. Therefore, the Commission is experiencing a loss of $6 to $8 per ton produced. In 1948, the revenue received from fertilizer offset about 60% of our total sewage-disposal operating costs, while today this has dropped to about 40%.

Of course it does afford us a way of disposing of these solids. But anyone who harbors a belief that such a way is strewn with dollar bills is doomed to disappointment.

RAY D. LEARY
Chief Engineer and General Manager
Sewerage Commission of the
City of Milwaukee, Wis.

Austin, Texas, Reduces Work Week and Adopts Workmen's Compensation

On January 7, 1955, the City of Austin reduced the work week for municipal employees except for those in the police department. Police department employees were retained on a 48-hour week and given a 7½% to 10% pay increase depending on the grade. Firemen were reduced from a 72-hour work week to a 63-hour work week with no reduction in take-home pay. All other city employees, some formerly working 44 hours per week (City Hall, City Hospital nursing personnel), some 45 hours per week (construction and related activities), and some 48 hours per week (power and filter plant offices, garbage division and a few other employees)—were all reduced to a 40-hour week with no reductions in take-home pay.

On February 1, 1955, the City of Austin adopted the provisions of Workmen's Compensation for all of its municipal employees, including Fire and Police. The city took advantage of the 1953 state enabling law in this respect by self-insuring for Workmen's Compensation rather

THE AMERICAN CITY

Harold S. Buttenheim, Editor • **Alden W. Welch**, Research Editor • **William S. Foster**, Engineering Editor
Douglas S. Powell, Associate Editor • **William T. Dulac**, Production Editor

Editorial and Executive Offices:
470 Fourth Avenue, New York 16, New York • MUrray Hill 5-9252

Edgar J. Buttenheim, President • **George S. Conover**, Vice-President
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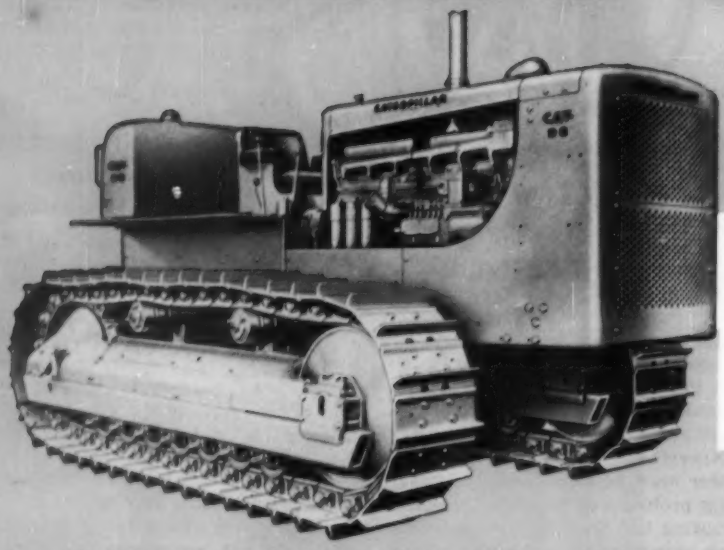
CATERPILLAR ANNOUNCES THE NEW D8



SERIES D and SERIES E

Choice of torque converter (Series D) or direct drive (Series E)

Here's a major advance in tractor design—the new CAT® D8 Series D and Series E. While it still bears the name of the unit that earned world-wide recognition as "boss of the crawlers," it is basically a *new* machine.

From its new 7-track roller track frame to its new engine, 155 HP at the drawbar and 191 HP at 1200 r.p.m., it is built to set new standards of money-making production. Along with its advance-design features, it retains such outstanding Caterpillar exclusives as the oil clutch and other job-proved developments. As a result, you can figure on it for *more* work at *lower* cost with *less* down time on *any* job.

Production-wise and profit-wise, you have a new yardstick of performance in the D8 Series D and Series E. For complete details, see your nearby Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

***NEW* ENGINE,** with new fuel injection system. Flanged center main bearing to take crankshaft thrust. Timing gear integral with crankshaft. Many other advantages.

***NEW* "LIVE-SHAFT" DRIVE,** independent of flywheel clutch, provides constant power for rear-mounted cable controls, etc., whether or not tractor is in gear.

***NEW* ONE-PIECE WELDED STEERING CLUTCH CASE**—main frame assembly for a stronger "backbone." Transmission removable without disturbing clutch.

***NEW* "EASY WORKING" CONTROLS** handy to comfortable, one-man seat. New streamlined hood for visibility.

***NEW* OPTIONAL DRIVE,** torque converter or direct drive. Torque multiplication of 5 to 1 gives smooth, efficient operation in each speed range.

***NEW* 7-ROLLER TRACK FRAME FOR GREATER STABILITY,** flotation and better ride.

***NEW* "WATER-QUENCHED" TRACK SHOES** for longer life than ever before.

***NEW* "IN SEAT" STARTING** for greater convenience, with new, more powerful starting engine for faster starts in any weather.

***NEW* HYDRAULIC BOOSTER STEERING,** independent of flywheel clutch, for maximum steering ease.

***NEW* 118-GALLON FUEL TANK,** large enough for normal 12-hour operation.

***NEW* ATTACHMENTS** include new cable controls. Also, new, larger bulldozer blades. All equipment used on the D8 can be used on the new D8 Series D and Series E.

NEW operating weight—D8 Series E (direct drive), 40,430 lb.; Series D (torque converter), 41,265 lb.

AND MANY OTHER NEW FEATURES!

MAIL TODAY!

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I'd like more information on the new D8 Series D and Series E

Name _____

Company _____

Address _____

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*Both Cat and Caterpillar are registered trademarks—®

The NEW D8 Tractor —another example of CATERPILLAR LEADERSHIP In action

MAIL BAG *(continued)*

(See also "More Letters to The Editor," page 167)

than insuring with an insurance carrier. An active safety program has been in effect for some time in the city working through the personnel department, and it is making itself felt in reduction in number of accidents over the past several years.

TERRELL BLODGET
Administrative Assistant to City Manager

Diffusion Wells Questioned

Mr. Welsch's article on diffusion wells (we call them drainage wells) to return storm water to the ground and thus replenish ground water supplies is of special interest to us engaged in the control of water pollution. ("Diffusion Wells," by W. Fred Welsch, January, p. 98.) They have very obvious advantages: they are adaptable to areas otherwise difficult to drain; they conserve groundwater supplies; and they can eliminate prohibitively costly trunk sewers.

This idea of recharging groundwater supplies is good and should be encouraged wherever practicable, *provided* that the quality of the water being replenished is not impaired.

The big difficulty with drainage wells is that they remain open and ready to receive any liquid dumped, spilled, or otherwise conveyed to them. The writer would be greatly interested in learning the views of Mr. Welsch and others on the risks to ground-water quality involved in the use of drainage wells for disposing of surface runoff from streets or highways.

Let us suppose that an oil truck or tank truck full of some poisonous chemical is involved in a mishap whereby the contents are released on the street and then enter a drainage well. What could be done about it? Could one as a practical matter pump it back out of the aquifer? Perhaps a mishap does not occur but someone decides to rinse out a chemical tank or wash down an oily floor and the washings go down the gutter and into the drainage well. How much phenol, for example, does it take to make almost any water unpalatable?

The San Francisco Bay Regional Water Pollution Control Board, in 1951 by resolution, disapproved of the construction and use of drainage wells for the purpose of disposing of surface runoff from streets or highways, *except* where such wells "discharge into a formation which at no time will contain ground water fit for domestic, argicultural, or industrial use." By "industrial use," the Board meant the higher industrial uses.

The degree of risk is probably small, but it is there, nevertheless. The damage to an underground storage basin, once done, may be long lasting or permanent.

JOHN B. HARRISON
Executive Officer
Regional Water Pollution Control Board
364 14th *St., Oakland, Calif.*

. . . and Defended

Diffusion wells and artificial recharge basins have two principal purposes in Nassau County. First, they provide drainage of streets, highways, and impervious surfaces, giving us a relatively inexpensive way to dispose of storm water. Next, they replenish the ground water which is the county's only source of public water supply.

The experience in Nassau County has shown that these wells and basins present no real risk of endangering the quality of ground water. The county maintains and operates 232 recharge basins of 1 acre or more, and these have been constructed a few at a time since 1935 when comprehensive drainage plans were prepared under the author's direction as engineer of the old Nassau County Sanitation Commission.

At no time to our knowledge has the ground water been contaminated by storm water entering these basins or wells. Ground water has been contaminated at several plant sites in both Nassau and Suffolk Counties by industrial wastes that have been sent to recharge basins on the industry's property. When this was discovered, the industries were required by the state and local health authorities to install, immediately, treatment plants to remove the toxic substances.

On Long Island, a restriction such as Mr. Harrison suggests would provide very little protection, and would create a great risk to the public water supplies in the two counties.

W. FRED WELSCH
18 *Wellington Road*
West Hempstead, N. Y.

20 States Have Upheld Redevelopment Laws

On page 179 of your February issue, a box quotes the American Municipal Association as saying that the highest courts in 18 states have ruled favorably on the use of the power of eminent domain. I rather imagine that the AMA got that news from our News Bulletin release prepared for the National Association of Housing and Redevelopment Officials and dated November 29, 1954. In any case, since that release we had prepared another for NAHRO, dated December 27, 1954, in which the up-to-date number of states was given—20.

The two states added to the 18 listed by you in February are New Jersey and Virginia.

FAUNEIL J. RINN
Public Administration Clearing House, Chicago, Ill.

19 in 1930; 800 in 1955

The Institute of Traffic Engineers held its first meeting on October 2, 1930, in the William Penn Hotel in Pittsburgh, Pa. There were 19 members present at that first meeting.

In 1955, the members of the Institute will return to the William Penn Hotel for the Silver Anniversary Meeting which is scheduled for October 23 to 27 inclusive. The membership has grown in 25 years from 19 to approximately 800.

MICHAEL J. GITTENS
General Chairman
Institute of Traffic Engineers

Who Can Beat This Record?

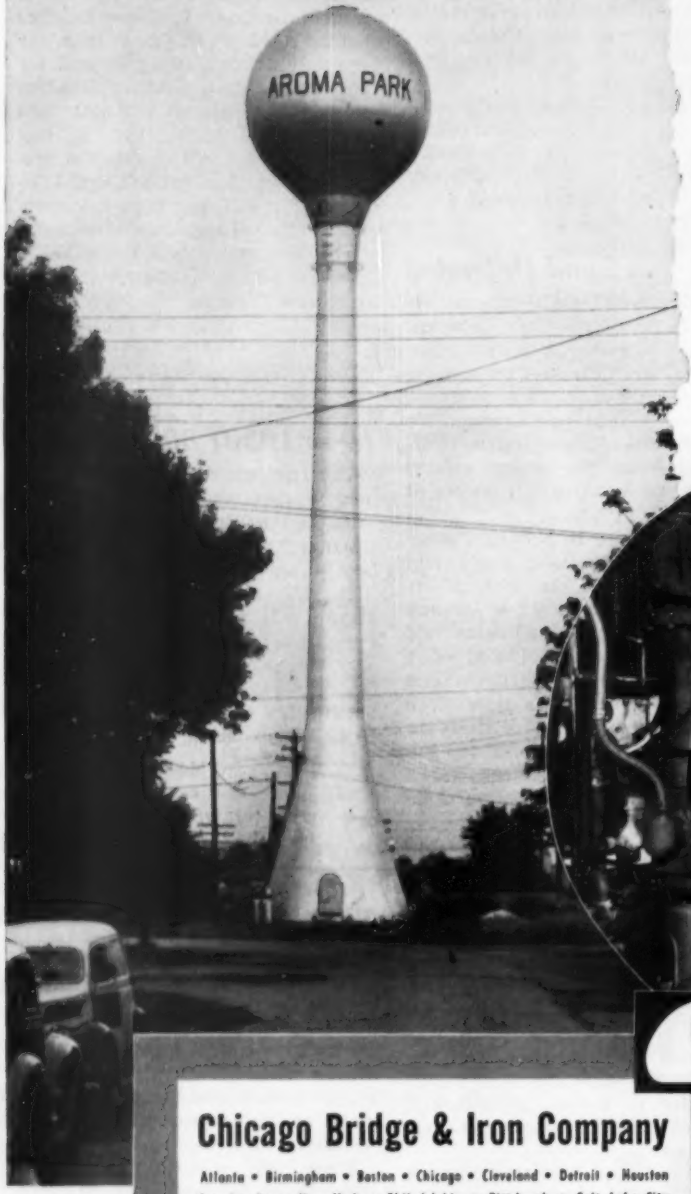
In clearing out some of our old files recently, I found a canceled check which I thought might be of passing interest to you. It is check No. 16 of the then newly organized firm of Hare & Hare, dated October 10, 1910. Presumably, it is for payment of our subscription to THE AMERICAN CITY magazine.

I am very sure that this initial subscription has been renewed every year since that time.

S. HERBERT HARE, *Kansas City, Mo.*

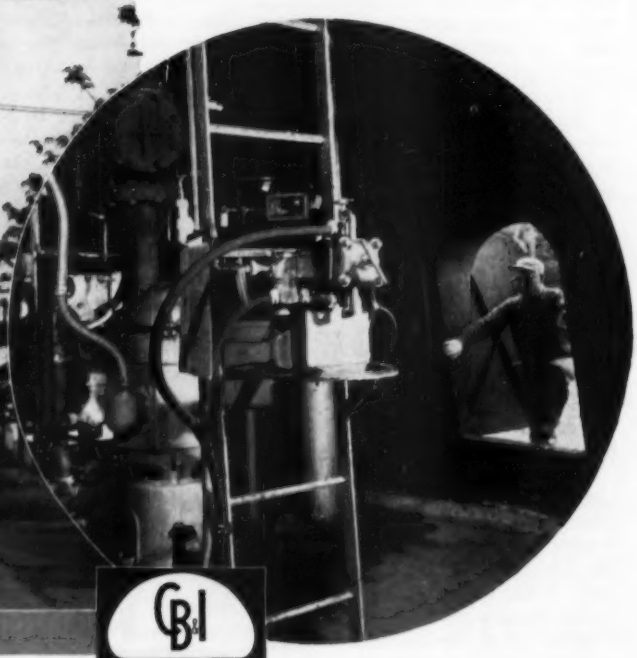
EDITORIAL NOTE: If any subscriber for THE AMERICAN CITY has exceeded this 45-year-old record of Hare & Hare, landscape architects and city site planners, the editors would be glad to know about it.

Sound Engineering and Modern Design



The pleasing symmetry of a Horton Watersphere® is fast becoming a symbol of progress, utility and good water service. Combining sound engineering principles with modern design they are providing private and municipal water systems with a dependable gravity pressure water supply for domestic, commercial or emergency use.

Waterspheres are built in capacities to 250,000 gallons. Write our nearest office for further information.



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Los Angeles • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • Tulsa
Plants in
BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

Above left: 50,000-gal. Horton Watersphere at Aroma Park, Ill.

Above: Interior view of Watersphere's base showing its use for housing water treating and pumping equipment.

Water Supply & Treatment

Ranch House Pumping Station

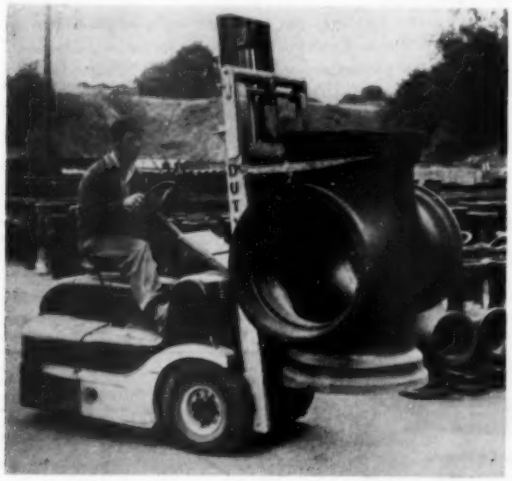
(Above) Although this building resembles a Texas ranch house, it is actually a water pumping station near a Dallas residential district. (Below) In the "parlor" sit two Economy centrifugal pumps powered by two 250-hp Electric Machinery motors.

Makes Equipment Handling Easy

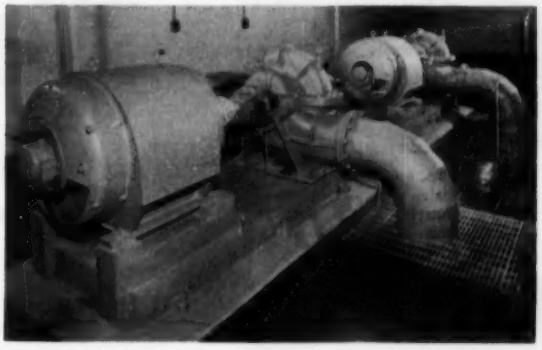
IF YOU had a 3,000-pound pipeline fitting and had to move it, what would be the easiest way to go about it? You could call on all hands, including the bookkeeper, and hope that nobody gets hurt. A better way currently in use at the Portland (Ore.) Water Bureau, is to send one man with a fork-lift truck to do the job.

Marvin A. Mosely, superintendent of Portland's Water Bureau, and his equipment foreman, C. Hiatt, have found the fork-lift truck invaluable in the equipment yard and warehouse. One man can take the truck inside a railroad freight car and can unload directly from the car to the storage areas in a single operation. The forks are adjustable sideways, permitting the operator to pick up heavy cast-iron tees, elbows, and pipe.

In three years of use, the machine has rolled up an operating record of 1,500 engine hours. The truck is a product of the Transitier Truck Co., of Portland, Ore.



The fork truck transports fittings with finger-tip ease.



Pasadena Uses More Water Per Capita

ALL the evidence gathered by Duncan A. Blackburn, chief engineer of the Pasadena (Calif.) Water Department, indicates that the people served by the city's water works are using more water per capita than ever before. Average daily use of water in Pasadena has risen considerably in the past years:

Year	Gallons Per Capita Daily
1942	120.0
1953	176.6
1954	184.7

This represents an increase in use per capita for the past year of 4.6%, and an increase since 1942 of 53.9%. The water department serves a total population (both inside and outside the city limits) of 131,130, or an average of 3.4 persons per service. Operating receipts have increased 5.2% in 1954 over the previous year while operating expenses increased 7.3%.

Mr. Blackburn lists these and other data in the recently issued annual report of the department. Copies are available to interested municipal officials.

"Lower the Broom" on High Sweeping Costs...

Cleaner sweeps on all types of terrain—high-crown roads, inverted gutters, airports, freeways, etc.

Four-wheel hydraulic brakes for maximum safety. Cab protects against overhanging limbs. Greater visibility for driver.

Sweep more gutter miles per day... Maneuver easily around parked cars.

with

MOBIL-SWEEPER

Most For Your Money at Budget Time: Mobil-Sweeper

MANY COMMUNITIES are reporting three times the gutter miles at one-half the cost with MOBIL-SWEEPER—the *modern* machine that sweeps, sprays and carries the full load direct to the dump. Pick-up crews and expensive loading equipment are thus eliminated; more miles of streets are swept cleaner at lower cost.

MOBIL-SWEEPER MAKES STREET SWEEPING A ONE-MAN JOB. This rugged, compact machine likes "tough going"... thrives on tortuous terrain. *One man* sweeps deep, wide gutters, sharp curb returns, steep hills, under low-hanging trees or other obstructions with ease. Right and left gutter brooms sweep dirt, bottles, cans, other trash into the path of the big full-floating pickup broom—leaving a clean 10-ft. swath (7'3" with single broom) behind.

Then, when the 2½ cu. yd. dirt hopper is loaded, the MOBIL-SWEEPER pops off to the dump—at maximum traffic speeds. Less time is wasted "dead-heading" to and from the dump... more refuse is picked up and disposed of with fewer stops.

DEPENDABLE OPERATION—MAXIMUM SAFETY. Mobil-Sweeper is teamed with a modifed International Harvester chassis and the famed Silver Diamond valve-in-head engine for better performance, fewer repairs. Four-wheel hydraulic brakes protect pedestrians; a truck-styled "Safety Top" cab protects the operator, gives him the visibility—and safety—he needs to do the cleaning job.

For complete information on how Mobil-Sweeper solves your sweeping problems—without creating budget problems...

Write for the facts!

CONVEYCO

MOBIL-SWEEPER

DIVISION OF THE CONVEYOR CO. • 3260 E. Slauson Avenue, Los Angeles 58, California

THE CONVEYOR CO. 3260 E. Slauson Ave., Los Angeles 58, Calif. AC-04

Gentlemen: Please send catalog, with complete details and specifications for the Mobil-Sweeper.

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TITLE_____

ADDRESS_____

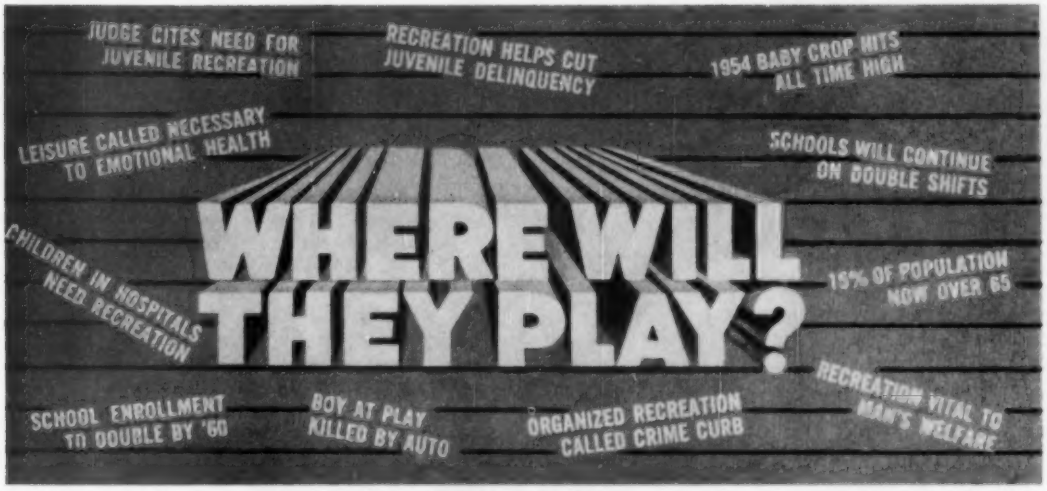
COUNTY_____

CITY_____

STATE_____

Parks & Playgrounds

Edited by JOSEPH PRENDERGAST, Executive Director, National Recreation Association


JUDGE CITES NEED FOR JUVENILE RECREATION
RECREATION HELPS CUT JUVENILE DELINQUENCY
1954 BABY CROP HITS ALL TIME HIGH
LEISURE CALLED NECESSARY TO EMOTIONAL HEALTH
SCHOOLS WILL CONTINUE ON DOUBLE SHIFTS
WHERE WILL THEY PLAY?
CHILDREN IN HOSPITALS NEED RECREATION
15% OF POPULATION NOW OVER 65
SCHOOL ENROLLMENT TO DOUBLE BY '60
BOY AT PLAY KILLED BY AUTO
ORGANIZED RECREATION CALLED CRIME CURB
RECREATION VITAL TO MAN'S WELFARE

To help answer this important question: "Where Will They Play?", posters based on the cover design for the 1955 Report of the National Recreation Association (shown above) will be available for use this summer to announce playground programs and to publicize local park and playground facilities. Printed on four-ply cardboard, and of the proper dimensions for use in streetcar and bus advertising card spaces, the posters can also be used in store windows, in parks, and on church, industrial, and school bulletin boards. For additional information write to the National Recreation Association, whose headquarters are located at 8 West Eighth Street, New York, N. Y.

A MILLION new homes were built in 1954. More than 4,000,000 children were born during last year. The latest Census Bureau estimates predict a population of 177,000,000 by 1960 and 221,000,000 by 1975. Statistics like these have led park and recreation leaders all over the country to ponder the question: "Where Will They Play?"

New communities and old are straining to provide education, health, welfare and recreation services for an army of young children. Last year there were 22,000,000 children in elementary schools alone and an additional 18,000,000 under five years of age.

Not only children, but teen-agers, adults, and retired adults have special needs for park and recreation facilities and services. A growing number of responsible union officials have begun to talk seriously of a 30-hour week. Recently Senator John W. Bricker of Ohio said that the leisure made available by new inventions has "created a problem which Americans have not yet solved." Unless mankind can use this new leisure in meaningful ways it will "sink into boredom more oppressive than tyranny."

Community provisions for parks and recreation provide the foundation for the individual's wise use of leisure time. Municipal planning for park and recreation services takes on special priority now because of the enormous growth in the child population.

Planning in Pennsylvania

An excellent example of how some government agencies are planning now for places to play for the present and future population is in southeastern Pennsylvania. A regional park, parkways and public preservation study is being conducted there by the Southeastern Pennsylvania Regional Planning Commission. The Commission was created as an official agency by the Boards of County Commissioners of Bucks, Delaware, and Montgomery Counties. Funds for the study were made available by the Pennsylvania State Planning Board.

The study is being directed toward two main objectives: the preservation of historic sites, and conservation of sufficient wooded areas and open spaces to maintain some of the natural beauty and rural character of the region, and the provision of regional parks, parkways and public reservations to meet the growing recreation needs of residents of Bucks, Chester, Delaware, and Philadelphia Counties. A comprehensive regional plan will be developed from the study to fulfill these objectives.

Intensive building development and staggering population increases in the region during the last few years have made immediate action necessary if the historic sites and natural beauty of the region are to be saved from destruction.

Between 1920 and 1950 the population in the four suburban counties increased at the rate of 88%, while Philadelphia increased only 14%. The number of employees in manufacturing plants in the four suburban counties increased by 53,000 or 41% between 1948 and 1953. The trend toward more floor space and large parking areas in industry and the building of new shopping centers, new factories, and new highways have added to the competition for land in the suburban areas.

According to the outline of the study, "unless large green areas are acquired by some type of public agency to serve as buffer strips, open and wooded areas now separating development will gradually be built up, producing eventually one solid mass of houses, stores, factories, streets and highways."

(Continued on page 13)

TOUGH GOING? Shoveloader Loves it!

More and more, this big 4-wheel drive loader of 1½ cubic yard bucket capacity is proving that it will work where other rubber-tired loaders fail, and that it's powerful enough to do jobs formerly requiring crawler-type equipment.

Now, you can load a 6-yard truck in one minute. Shoveloader's TRIPLE-ACTION bucket breaks-back down low... crowds forward and hoists all in one motion. Your actual pick-up is up to 2 cubic yards of material.

The high rear axle oscillation assures positive four wheel traction while low center of gravity means good stability.

SHOVELOADER'S other features include—long forward reach, high lift, full-width bucket, bucket arms forward—safely away from operator, power steering on two or four wheels, full visibility.

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handling equipment

SHOVELOADER
THE NEW LEADER IN LOADERS

SUMMER

Seattle Park Leaders Honored at Pool Opening

THE Seattle Park Board joined with the Mayor and City Council recently in dedicating the new $250,000 indoor swimming pool in honor of Seattle's two pioneer recreation leaders. This new Evans Swimming Pool in Green Lake Park is a tribute to the years of service of Ben and Lou Evans.

Ben Evans who, for many years, has been Director of Recreation for the Park Board began his work there in 1917. Lou Evans, the assistant director, was first employed by the Board in 1912.

The new pool incorporates many of the latest developments in swimming-pool construction. It is housed in a building 134 feet by 112 feet. The pool area itself is 42 feet by 75 feet, with depths ranging from three feet to five feet at the shallow end and 12 feet under the diving boards. There are six official 7-foot swimming lanes for competition. Diving equipment consists of AAU 3-meter and 1-meter aluminum adjustable boards.

It has sixteen 500-watt underwater lights, enclosed behind water-tight glass. The pool area is illuminated with adjustable bracket fixtures which shine in an alternate fashion both toward the ceiling and toward the pool. Portholes are provided through which swimming and diving instructors can view their students and underwater photographs can be made.

A hot-air system removes the moisture from the atmosphere and returns warm air. The water is maintained at a temperature of 76-80 degrees by the automatic oil-fired burner which services the adjacent fieldhouse. The same furnace also heats the whole pool building.

Service charges set by the Board of Park Commissioners are 10 cents for children 14 years and under, 25 cents for those between 14 and eighteen, and 35 cents for those 18 and over. Extra charges are made for towels, bathing suits, and lockers.

Artificial Ice-Skating Rink in Operation in Jersey City

JERSEY CITY, N. J., is the latest city to stop talking about the winter weather—or lack of it—and to start to do something about it. Their first artificial skating rink was installed this winter and has met with unqualified success.

The rink is located at the Park Department's Roosevelt Stadium. It is 85 feet by 90 feet and employs two 60-ton compressors. Ten miles of 1½-inch iron pipe produces an ice thickness of 1½ inches. Parking facilities are provided for 5,000 cars.

Children under 14 years of age are admitted free at the afternoon sessions during the week and at the Saturday morning session. A 50-cent admission charge is made for evening sessions and week-end afternoon sessions. Adults are always charged 50 cents admission.

Park Commissioner Joshua Ringle estimates that the money collected from admission fees will be sufficient to amortize the bonds issued for the original installation cost. During December, January and February a total of 88,168 persons used the rink. Of this number 40,547 paid admission fees; 47,621 were admitted free of charge.

Not only is the rink a financial success, but one of the local newspapers commented editorially: "Providing wholesome recreation for teen-agers is more of a deterrent to juvenile delinquency than all the remedies commissions, committees, and juvenile courts could devise.

"Ice skating is a wholesome recreation and healthful exercise that burns up excess energy in the youngsters —superfluous vim and vigor that so often leads idle hands and idle minds into trouble."

Young, old, beginner and advanced skater enjoy wholesome recreation out of doors at the Jersey City ice-skating rink.

—THE NO. 12 DOES A JOB

These two pictures, one taken in June, the other in February, show the same CAT* No. 12 Motor Grader at work for the City of Kellogg, Idaho. Whether there are streets to be graded or snow to be cleared, this big yellow grader does the job well.

"It's a wonderful machine," says Tom Olson, Street Superintendent. "And wonderful is the word for Caterpillar dealer service, too. Together they keep us sold on Caterpillar products."

This No. 12 is the second Cat Motor Grader owned by the city. The other—an old No. 10, purchased in 1937—is still running and doing its share of the work. That's not unusual, for 99% of all Caterpillar Motor Graders ever built are still in use! One reason is that genuine factory parts are available for all models. There are no "parts orphans" in the Caterpillar line.

In town after town the No. 12 is saving money for taxpayers because of its fuel economy, low maintenance cost and long life. Operators like its easy handling and blade adjustment, positive control and full visibility of the job from the seat. Big, rugged and powerful, the Cat No. 12 (with 115 HP) is built to outperform any competitive machine on the market. Your Caterpillar Dealer will gladly prove that fact with a demonstration right on your own roads. Call him today.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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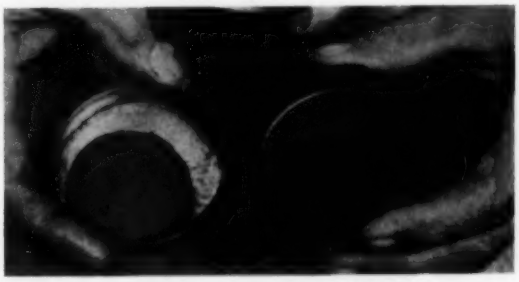
NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

New Orleans' Shrinking Streets



These two samples of soil once filled their containers, but shrank to present size under air-drying conditions only.

UNDOUBTEDLY no city in the United States builds its streets on soil so unstable as that of New Orleans. This great city, with its romantic and colorful past, and its fast-developing commercial and industrial future, probably owes more to its city engineers who, throughout its history, have made the swampy land livable, than any other comparable municipality.

The patient engineering study of the soil that must support the city's streets is only one example. The soil is moist and peaty, full of organic matter. Understandably enough, the people like gracious, shaded, tree-lined streets, but in no other city do they pay so high a price for shade.

Normally, the water table is high, close to the surface of the ground. But frequently a dry spell strikes New Orleans and lowers this water table. When it does, the roots of the trees take the water from the soil, and cause it to shrink—often more than a foot.

To correct this problem, City Engineer Albert G. Wyler and his staff have no easy answer. They cannot destroy the street trees and still remain on friendly terms with the public. At present they repair the damage and embark on a program of replacing the trees with types that do not require so much water, such as slow-growing oaks and hard maples.

A culvert pipe across the street caused this hump in the street profile.

(Above) A manhole supported the concrete pavement at this point. The soil shrank enough to permit a rod man to crawl almost out of sight. (Left) At this point, the street center rests on a covered drainage canal. Water-absorbing trees lowered the outer street sections to almost roof-top slopes.

NOW THE FIRST "Packaged" FIRE ALARM SYSTEM

PREVIOUS EQUIPMENT REQUIRED THIS MUCH SPACE

NEW GAMEWELL FORM 4
USES ABOUT THIS MUCH SPACE

For the small community, or for decentralized big city Fire Alarm Systems, The Gamewell Form 4 fills today's needs.

THE GAMEWELL FORM 4

In 20% to 30% of the space previously used, you can install this complete control unit, including batteries.

And the Gamewell Form 4 Automatic Control System enables you to put saved dollars into street fire alarm boxes for public safety and reduced fire losses.

This "packaged" Fire Alarm Control Cabinet is quickly and easily installed. It contains *all* the devices needed for a complete central office setup. It *automatically* repeats box alarms and warns if a circuit is broken. It has a reserve power supply for emergencies and meets NBFU Standards.

FEATURES

- **Requires only 20% to 30% of space previously needed for complete central office equipment including batteries.**
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- **Available in any capacity required to 10 circuits. Readily expanded to meet growing needs.**
- **Automatically repeats box alarms; warns if a circuit is broken.**

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THE BOX IS POSITIVE
Reduces Human Error

Public Safety

St. Paul's Multipurpose Rescue Boat

Officer Domenic Fabio of the St. Paul (Minn.) Police Department and the boat he uses to patrol the Mississippi River within the limits of the city. Powered by an Evinrude outboard motor, the boat is also used on the various lakes in and near St. Paul when drownings or other accidents occur, and has been successfully employed for patrol work during floods.

Radios to Be Atom-Tested

EXPOSURE to a nuclear explosion should show how well the nation's vital mobile 2-way radio systems could withstand an enemy atomic attack. Motorola and other member companies of Radio-Electronics-Television Manufacturers Association are taking part in the civil-defense portion of the atomic test series to obtain technical information needed for civil-defense planning.

Equipment to be tested, reports Motorola, Inc., includes FM base stations with 30-watt transmitters and receivers housed in standard desk-top console cabinets; battery-powered "Handie–Talkie" portable radiophones; 30-watt FM mobile transmitter–receivers, and several types of fixed station antennae.

* * *

LOS ANGELES police department's new headquarters, Police Facilities Building, occupies an entire block within sight of sky-scraping City Hall. It was started early in 1953 under a $6,142,000 contract awarded by the city's Bureau of Public Buildings.

An eight-story administration building dominates the new headquarters. This structure is flanked on one side by a two-level garage with parking space for hundreds of police cars, and on the other side by a long, two-story jail wing.

* * *

To Counter Gas Poisoning

CLOSED rooms and limited ventilation, common in the cold winter months, add to the hazards of exposure to deadly carbon monoxide gas. The Police Department of New York City has provided members of its patrol force with instructional leaflets on carbon monoxide poisoning.

The one-sheet bulletin describes sources of the gas, how it acts on the body, and tells what to do to resuscitate persons overcome by it.

Copies of the leaflet published by the Consolidated Edison Company, of New York, were made available to police and law-enforcement officers throughout the state. The gist of it is given below:

When carbon monoxide is breathed it combines with the blood. The more carbon monoxide there is in the blood, the less oxygen the blood will hold.

The gas victim becomes asphyxiated just as if he were being gradually choked to death. As low as 1-10th of 1% of carbon monoxide in the blood will kill a man in time; 1% will kill him in a few minutes.

If the victim does not die in the gas but is removed to fresh air, the carbon monoxide leaves the blood in a few hours. The quicker it is breathed out of the blood the better are the chances of recovery.

If you have to go into gas to get a man out, remember that nobody is immune. Protect yourself. A handkerchief tied about the nose and mouth is not a gas mask; many have died in the belief that it is.

When a man is overcome by gas, the first thing to do is to get him into fresh air quickly. Fresh air does not mean out of doors in cold weather. Many men have walked from a warm room containing gas to collapse in the cold outside air. Take the patient to a room free from gas and comfortably warm. If the patient is not breathing or is breathing weakly, start artificial respiration at once and send for inhalation apparatus.

JAMES R. BARRETT
Chief, Police Bureau
State Division of Safety
Albany, N. Y.

Breathing Air in Smoke

FIRE-FIGHTING METHODS, as well as equipment, change with the years. One of today's slogans is: "Yesterday's fires were fought by defense—today it's fire attack!" There was never any hanging back in battling a severe fire, but there often was a sheer physical inability to get firemen in and at the seat of the fire in its early stages.

The "Fire Attack" slogan has been picked up for promotion by Scott Aviation Corporation of Lancaster, N. Y., whose air-breathing equipment has done so much to make possible close-up attack. Firemen seem to feel safer and less preoccupied in a smoky atmosphere when breathing fresh, cool air than when using an oxygen mask. If not delightful, it's at least a familiar medium to breathe.

During the last year or two, the New York City Fire Department has been equipping apparatus with self-contained Air-Paks: two on pumping engines, two on ladder trucks, and 12 on each of the five rescue trucks. The men say these are easier to use and maintain, and essential in case of fire in a tunnel undergoing construction, and in the hold of a ship—both likely to happen in New York.

* * *

WHILE MANY INNOVATIONS are being tried by transit operators to recapture passengers lost to the private automobile, one of the most popular appears to be the use of fringe parking lots along the outskirts of cities, with connecting express bus service into and out of the downtown area. Transit and city officials are working hard to make fringe parking as attractive as possible, the Chamber of Commerce of the United States reports.

Sewerage and Sewage Treatment

Grit, Paint, and Elutriation

A GRIT chamber placed in the Annapolis (Md.) sewage-treatment plant when it was constructed back in 1936 probably would have prevented digester difficulties in 1953, but it wouldn't have headed off the headache of corrosion. The plant was designed to provide primary sedimentation, separate sludge digestion, and vacuum filtration.

Early in 1953, the operators began experiencing difficulty in withdrawing the sludge from the digesters. When they drained one of the digesters, they discovered large quantities of sand packed tightly around the sludge-withdrawal pipe. At the same time, they discovered considerable corrosion and some electrolytic disintegration in the structural steel members of the digestive mechanisms. Consequently, the members had to be replaced and two coats of Bituminous No. 50 corrosive-resistant paint applied to the new structures to prevent similar damage in the near future.

Today the plant has a mechanically cleaned Dorr Detritor, 18 feet square, that will keep sand from infiltrating the digesters. It also has a mechanically equipped elutriation tank to help process the sludge prior to digestion. The tank is a Dorr AG sludge thickener, 20 feet in diameter and 11½ feet deep.

The plant provides elutriation by using well water mixed with the sludge. To control the mixture, the plant uses a Simplex venturi tube that measures the flow of elutriated sludge. With this new equipment, the plant's vacuum-filter output has been stepped up from 4 to 6 pounds to 7 to 9 pounds per square foot per hour. The peak output has been as high as 16 pounds.

August Damps, superintendent of sewage treatment, is in charge of the plant.

Rapid Sewer Cleaning For Rapid City

SEWER maintenance at Rapid City, S. D., took a big step forward when the city supplied its sewer department with a Turbine sewer cleaner. City Manager H. S. Thorgrimsen, in his annual report states that this equipment has been in continuous service throughout the year. The three-man crew that operates the machine has cleaned sewers in 72 blocks during the 1954 season.

In addition, the crew was called upon to raise or lower 65 manhole castings to conform to revised street grades. The men, on call 24 hours a day, also had to replace a broken manhole ring, lamp, 16 blocks of main sewer lines, replace a limited amount of damaged sewers, and fill in a washout on another section of sewer line.

The sewer department also has one inspector on call at all times. He made 22 night calls during the year investigating reports of damaged sewers. The city issued 853 sewer permits, and the inspector visited and examined each connection, taking measurements, and filing them with the engineering department.

In Rapid City, roots are no help to a sewer.

No Garbage-Grinder Worries

SO FAR as the Minneapolis–St. Paul Sanitary District is concerned, the public can continue to purchase and install garbage grinders. The food wastes will cause no problems at the District's treatment plant. At the present rate of grinder installations, treatment facilities will be adequate for at least the next 15 years.

The growth of grinders in the Minneapolis–St. Paul area has been stimulated by a state law prohibiting the feeding of uncooked garbage to hogs. Consequently, many large, downtown hotels and restaurants are installing the grinding units.

Chief Engineer Kerwin Mick estimates that the total volume of sewage flow will increase less than 2% even if every home and commercial establishment were to install grinders. The strength of the sewage, he estimates, would rise 40%, and the increased cost to the District would average about $4 per ton of "green" or wet garbage received. At this figure, the cost per home would be $1.28 per year.

Sludge-Refuse Incinerator Data

THE 17-year-old incinerator at Frederick, Md., has been performing the twofold sanitation task of burning both sludge and refuse at an operating cost of only $1.90 per ton. For the city's 20,000 people, this means a cost of 86 cents per capita.

Last year, the incinerator had to handle 10,472 tons: 1,856 tons of sewage-sludge cake, dewatered to an approximate moisture content of 70%; the balance, mixed refuse. The incinerator is rated at 60 tons per 24 hours and uses Pittsburgh-Des Moines furnaces. These accomplished 94.6% destruction of the waste.

The total amount of refuse and sludge cake incinerated represents an average daily destruction of 33.55 tons, based on a 24-hour, six-day week. Total burning time for each of the two furnaces was 2,586 hours, or an average of 2.01 tons of material for each hour of furnace operation. The amount of coal used for supplemental fuel was negligible, amounting to less than 2 tons for the entire year.

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Nothing—when you buy a Fischer & Porter Chlorinator. That's true because fool-proof safety features are already engineered into this modern, instrument-type chlorinator.

> The F&P Chlorinator is instrument engineered from top to bottom to be absolutely safe in any emergency—and the safety features respond instantly. The mechanical design—without hydraulic devices to introduce time lag—make this a certainty . . .

In the F&P Chlorinator you can take a hammer and shatter the flowmeter tube—and the chlorinator shuts down *instantly*.

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In the F&P Chlorinator a simple series of hand manipulations tests each safety component—or shows the reason for malfunctioning should it ever occur.

These safety advantages are yours in the Fischer & Porter Chlorinator. They cost you not one penny more at the outset, since the F&P Chlorinator is lower in first cost. They avoid constant costs of repeated safety tests and checks. They assure you against high costs of repairs and maintenance. We don't put our safety devices under a bell jar—they are right out in the open where you can see and touch them.

These engineered features—*instrument-type engineering*—make the F&P Chlorinator the safest ever built. And you get all these safety features *plus* ease of operation, dependability proven in over 600 operating units, complete corrosion resistance—everything you should have in a chlorinator—and you get them for even less cost in the initial purchase. Write today for full information, details on free trial offer, and *absolute guarantee of satisfaction.*

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18 YEARS SUCCESSFULLY MANUFACTURING CHLORINE CONTROL EQUIPMENT

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New Portable Field-Fone Provides Instant Contact with Headquarters, Other Patrolmen or Squad Cars

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The extreme compactness of the Field-Fone is achieved through miniaturization of parts and the use of printed circuits. Nothing has been left out to impair the excellent performance of either the transmitter or receiver.

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PAK-FONE THE 2-WAY PORTABLE RADIO WITH 3-WAY POWER SUPPLY FOR CONTINUOUS OPERATION

The Pak-Fone is a complete communications center. It may be plugged into an ordinary 115 volt AC power circuit, attached to an automobile storage battery or operated from its own self-contained batteries. In any emergency, the Pak-Fone is ready for instant vital service. Loud speaker reception.

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Some Current Municipal Trends

Denver Ordinance An Example of New Zoning Trends

THE new Denver zoning ordinance, which was adopted early in February by the nine-man council of that Rocky Mountain city, is a good example of many of the trends in new zoning ordinances. Not only does the ordinance contain almost all of the recently developed improvements in zoning techniques, but it strikes at three additional soft spots in zoning. First, it seeks to control the creation of spot zones—the kind that are so often legislated by reluctant city councils in response to strong political and other pressures. Secondly, the new ordinance establishes stringent controls to prevent improper variances so often granted by boards of adjustment in response to the same kinds of pressures urged on city councils for zone changes. Finally, the ordinance makes zoning a more flexible and useful tool in controlling service types of land uses whose locations or development trends cannot be predicted.

First, let's begin by reviewing the parts of the ordinance dealing with the three items just mentioned. The control over spot zoning is handled by setting forth minimum areas for the establishment of all new zones. For the majority of the zones at least eight acres of land are needed, and for the most restricted residential and business zones, somewhat more flexible standards are set. Provisions are included that prevent the direct abutment of zones that would be incompatible with each other. Intervening streets or public properties are required to provide partial buffers.

Variances Tightly Controlled

The sections dealing with variances contain a formidable list of conditions that must be found to exist in connection with a property before the Board of Adjustment can act on a variance application. Among the eight findings that must be made are these:

1. the variance will not authorize a use that is prohibited in the district in which property in question is located;
2. the circumstances creating the need for the variance are unique to the property in question and are not caused by the owner in any way;
3. the variance will not injure the use of adjacent property in the same district.

Once findings are made on these and other points, the five members of the Board of Adjustment are then ready to act on a variance application. To pass the variance, however, at least four of the members of the Board must be in agreement.

In setting forth standards to regulate uses whose future locations can't be predicted easily, the new Denver ordinance acknowledges that business districts for undeveloped areas can't be pinpointed far in advance of residential development. And so the ordinance establishes a flexible procedure whereby applicants for business zones in developing areas must prove to the city council that there is a need for such new districts. The evidence that must be presented in accordance with the ordinance includes:

1. A report on the market area to be served, its population, its income characteristics, the type and amount of service needed, and other pertinent area data which support the application
2. A report on the surrounding land uses and how they might be affected by the new service zone
3. General site plans indicating the following: adequate zone size to meet the ordinance requirements, shopping uses to be developed, building locations, pedestrian and vehicular circulation, off-street parking and loading and traffic handling methods
4. A time schedule of development to demonstrate readiness to furnish the proposed services.

Even after filing these data, the applicant has no guarantee that his request for a business zone will be granted, for Planning Commission study is necessary and final city council approval is essential.

New Parking Lot Zone

Off-street parking gets a lot of attention in the new ordinance. In fact, perhaps its most unique aspect is the parking-lot zone that can be located next to any business district. The only permitted uses within the zone, besides signs, are parking facilities that conform to design requirements set forth in the provisions establishing the district. Another section of the ordinance sets forth detailed off-street parking requirements for uses in all zones other than the central business district.

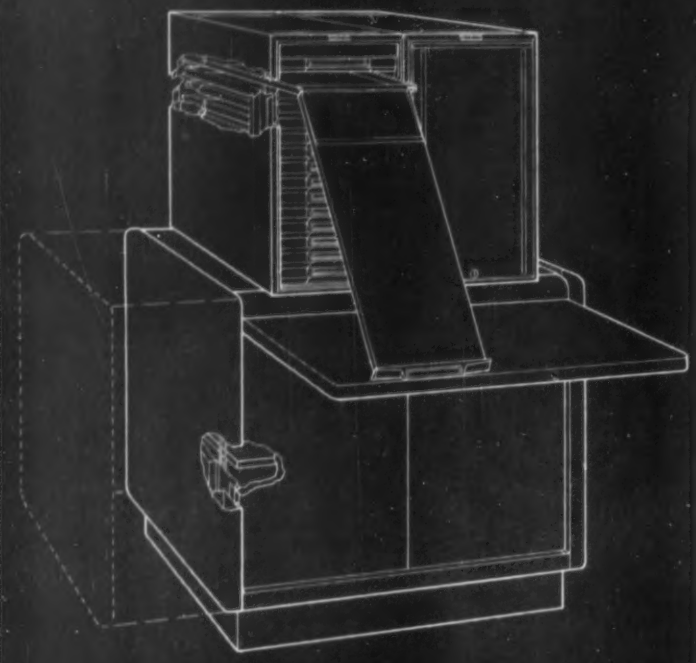
In addition to the points discussed above the ordinance includes the following examples of new zoning techniques: the exclusion of residences from industrial and business zones; the exclusion of businesses from industrial zones; and the establishment of performance standards, covering sound, vibration, light and other external land use effects, not only for industrial areas, but for all zones.

While not going as far as the Los Angeles zoning ordinance in setting termination dates for different types of nonconforming uses, the Denver ordinance requires such uses to be registered annually in order to maintain a constant check on their status. Flexible standards are included in the text for the design of housing developments. In specified zones mixtures of housing types will be permitted on specially designed plots. A minimum floor area for each dwelling unit is specified and to further tie the zoning ordinance in with other city efforts to establish sound housing standards, a minimum outside exposure area is defined for all windows.

The ordinance—a 188 page mimeographed document—is the result of months of cooperative effort among top officials of the Denver government. Top credit goes, however, to the City and County Planning Department, which in many instances developed its own zoning techniques for answering Denver's problems. Rapid acceptance of the complicated ordinance by both citizens and city council was due in large part to the great care exercised by the planners in keeping everyone informed of the progress being made in developing the new ordinance. District meetings at which the public had a chance to hear and talk to the planners played a big part in the public relations efforts.

ACME VISIBLE

VIRGINIAN LINE CABINETS



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Completely new . . . completely different . . . designed for easier, speedier reference and posting, engineered for maximum strength, made to precision specifications, finished a new light, warm color . . . a new high of efficiency and beauty in visible equipment.

NEW COLOR—Greytan . . . a light warm color, pleasingly harmonious with modern office machines and furnishings.

NEW APPEARANCE—characterized by crisp, prismatic, functional lines.

GREATER STRENGTH—maximum rigidity achieved by formation of shell and reinforcing members.

GREATER CONVENIENCE—with more capacity, wider label holders slanted for improved visibility, more finger space.

EASIER TO USE—intermembered slides forming partitions between trays, nylon rollers and rubber stops reduce friction, provide smooth, speedy, quiet action.

Stands match cabinets in color and design.

Removable end panels provide for expansion and yet retain smooth one piece appearance.

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income characteristics, the type and amount of service needed

part in the public relations efforts.

Our Municipal Notebook

Entry Blanks Ready For 1955 All-America Cities Contest

THE National Municipal League announces that its annual "All-America Cities" Awards will be given again this year to a team of 11 communities that have made an outstanding record of accomplishment through citizen action.*

Initiated in 1949, the competition has attracted increasing public attention year by year, until now it is considered one of the highest honors a community can achieve. For the last four years, *Look* Magazine has been co-sponsor.

Any city, town, village, county, or other unit of local government that has achieved improved government, eliminated rackets, stimulated the building of adequate schools or public works, solved a traffic problem or otherwise made itself a better place in which to live or work is eligible to enter the contest. The accomplishment must have been brought about through the initiative of citizens rather than public officials, the League emphasized.

Official entry blanks may be obtained from the League, 47 East 68th St., New York 21, N. Y. These must be executed and returned by May 15.

Representatives of 22 finalists selected by a screening committee will appear before a jury of citizen leaders and experts on government at the National Conference on Government, July 24 to 27, in Seattle, Wash. After their presentations to the jury, the claims of all finalists will be carefully investigated. The jury will then pick 11 winners, who will be announced in January 1956.

* For reports from the "All-America Cities" of 1954, see THE AMERICAN CITY for February 1955, pages 136-139.

New York Housing Authority Has New Director

ON MARCH 9 Warren Moscow became the new Executive Director of the New York City Housing Authority, succeeding Joseph F. McMurray in that position. Mr. McMurray is now State Commissioner of Housing.

Mr. Moscow, for 22 years on the staff of *The New York Times*, had been an Assistant to Mayor Robert F. Wagner since January 1, 1954. During that time he specialized in matters dealing with finance, the Department of Housing and Buildings, the Housing Authority, the Department of Public Works, the Controllers' office, the Tax Department, the Department of Traffic, and with legislation.

City Planning, Theme of West German Conference

CHARLES S. ASCHER, representative of the International Federation for Housing and Town Planning at the United Nations, reports that a West German Conference was held in Dortmund, in the Ruhr, on February 24 and 25 on the theme: "The City Plan Concerns Us All." It was sponsored by six organizations, including the Social Science Research Center of Munster University; the Institute of City and Regional Planning of the Graduate School of Technology at Aachen, and the German Federation for Housing and City and Regional Planning. The main subjects discussed were: Public Responsibility for City Planning, for Land Planning, and for Design. An international element was introduced by speakers from the U. K. Ministry of Housing and Local Government, by the head of the Department of Housing and Planning of Vienna, by architects, planners and officials from The Netherlands (who talked about "U. S. Experience Through European Eyes"), and Switzerland ("What Does Democratic Planning Mean?").

Housing and Redevelopment Officials Form New York Chapter

THE National Association of Housing and Redevelopment Officials announced on March 7 the formation of a New York Metropolitan chapter. Officers of the new chapter are:

President—Emmett Burke, Secretary-Director of the Yonkers Municipal Housing Authority

Vice-President—S. Walter Van Nostrand, Deputy Director of Management of the New York State Division of Housing

Treasurer—John Tracey, Management Officer of the Public Housing Administration

Secretary—Elizabeth Coit, Senior Architect of the New York City Housing Authority.

Los Angeles Seeks A City Planning Director

THE City of Los Angeles has announced a forthcoming examination for the now vacant post of Director of Planning in its City Planning Department. Requirements for the position include graduation from a recognized college or university and five years' experience supervising professional or technical employees as director or first assistant director of a planning or similar department. The current salary for the position is $15,500 per year. Persons interested in the examination, for which no date has been set as yet, can obtain further information from the Board of Civil Service Commissioners, 5 City Hall, Los Angeles 12, Calif.

REPRESENTATIVE MUNICIPAL BOND ISSUES

February 28 to March 9, 1955

Date of Sale			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
2/28/55	Middleburg Heights, Ohio	$ 90,000	Fire Station Building	6¼	2.91
2/28/55	Webb, N. Y.	60,000	Water System Const.	19½	2.95
3/1/55	Norman Co., Minn.	75,000	Drainage	4½	1.93
3/1/55	Edgecombe Co., N. C.	45,000	School Refunding	5½	1.48
3/1/55	Corfu, N. Y.	55,000	Water System	10½	2.38
3/2/55	Auburn, N. Y.	227,000	Public Improvement and Apparatus	3	1.39
3/2/55	Holyoke, Mass.	4,000,000	Water	15½	2.18
3/3/55	Caesarcreek, Ohio	85,900	School Building	9	2.67
3/3/55	Colonie, N. Y.	40,000	Fire District	7	2.48
3/8/55	Netcong, N. J.	84,000	Water	11	2.47
3/8/55	Rensselaer Co., N. Y.	277,000	Improvement	2-5/6	1.46
3/8/55	Somers, N. Y.	52,000	Water Supply	11½	2.73
3/9/55	North Adams, Mass.	340,000	Police an Fire Station	9½	1.92

Compiled from *The Bond Buyer*

Increased Borrowing Power for Most New York State Communities

THE MAJORITY of New York's municipalities had their debt capacities boosted in February when authorities revised assessment equalization rates throughout the state. For many communities — particularly rapidly growing school districts — the boost was a welcome one, since recent and anticipated bond issues were placing them close to their debt limits. In New York City, John M. Leavens, executive director of the Citizens Budget Commission, Inc., estimated that the equalization rate change will, in six years, more than double the debt-incurring power of the state's chief municipality.

The rates, which are devised by the state to be applied to locally determined assessed valuations, are used to adjust the diverse methods of municipal assessment to a common base. This is essential in New York where state funds to aid municipalities are distributed according to formulas depending on a locality's equalized assessed valuation. The common base adopted in New York State has been 100%, or true value. Recent studies had shown, however, that the old equalization rates were not bringing the locally determined valuations up to the true figure; hence, the revision of the rates. Since the rate revision tended to raise the equalized valuations of most municipalities, their borrowing capacities, which are figured as fixed percentages of the equalized valuations, were also raised.

Approximately two-thirds of the 48 states have programs of equalizing local assessments.

Plan to Improve Downtown San Francisco

A JANUARY 1955 report* of the San Francisco Department of City Planning analyzes the functions of downtown San Francisco, its appearance, its future prospects, and presents a suggested plan for alleviating its present problems. Calling attention to the rapid development of regional shopping centers and suburban office districts on the periphery of the San Francisco metropolitan area, the report notes that "the relative role of Downtown in the economy of the future Bay Area depends on the ability of the downtown area to capitalize upon its advantages and overcome its deficiencies."

The deficiencies, the report states, are a progressively worsening traffic congestion, a jumbled and poor appearance of the downtown area, an inadequate rapid-transit system to distribute workers and shoppers through the downtown area, and inadequate areas for pedestrians.

The suggested plan makes provision for:

(a) A regional rapid transit system tied in with the local system;

(b) parking facilities distributed around the periphery of the downtown area;

(c) a systemization of the downtown streets to handle pedestrian, surface transit and vehicular movement that, to as great a degree as possible, is not conflicting;

(d) the improvement of the overall appearance of the downtown areas to create an attractive environment;

(e) the completion of the planned freeway distribution system to handle traffic around the downtown area.

The plan, which is a preliminary one, is offered to stimulate further discussion and action among the business and civic leaders of San Francisco concerned with the problems of decentralization.

* "Modernizing Downtown San Francisco." San Francisco Department of City Planning, 100 Larkin St., Civic Center, San Francisco 2, Calif. 39 pp.

What to Do with Radioactive Wastes

THE problem of what to do with radioactive wastes is getting close scrutiny by leading investigators the nation over.

● At the University of California, Professor H. B. Gotaas is investigating the use of sanitary engineering methods for the disposal of high-volume, low-level radioactive wastes.

● At Harvard University, Professor H. A. Thomas is determining the distribution and disposition of radioactive material introduced into freshwater reservoirs and streams.

● At the University of Illinois, Professor H. E. Babbitt is investigating the feasibility of concentrating radioactivity using sludge-digestion processes.

● At the U. S. Bureau of Mines, R. C. Corey is attempting to develop a practical incinerator for disposal of solid combustible radioactive wastes.

● At Massachusetts Institute of Technology, Professor Rolf Eliassen is exploring methods of removing radioactivity from water supplies by modified water-treatment methods.

● At New York University, Professors Gail P. Edwards and W. E. Dobbins are testing the feasibility of tricking filters for treatment of dilute radioactive wastes.

President's Economic Report Offers Suggestions For Local Official Action

IN ITS February issue THE AMERICAN CITY published three excerpts from President Eisenhower's "State of the Union" message of January 6, of special interest to local officials. We now quote several specific proposals of importance to our readers, from an appendix to the President's annual Economic Report, submitted to Congress on January 20:

● Review state and local tax-rate and debt-limiting statutes with a view to removing or relaxing, where advisable, these barriers to local public investments. (State responsibility.)

● Consider including under the unemployment insurance system employees of state and local governments, and employees who work for firms employing fewer than four persons, to the extent that these workers are not now covered. (State responsibility.)

● Expand the area development program of the Department of Commerce, which is designed to help depressed communities.

● Take steps early to help relieve the classroom shortage in our schools. (Congressional and state responsbility.)

● Modernize over a ten-year period the presently designated national system of interstate highways.

● Appropriate funds to set up an Office of Co-ordinator of Public Works Planning within the executive office of the President.

● Enlarge the appropriation for planning advances to states and municipalities, and establish a fund for the purpose.

● Study the problems of metropolitan areas, so that area-wide transit systems, sanitation systems, water supplies or educational facilities may be provided with maximum returns from public funds expended. (State responsibility.)

● Take steps to expedite urban renewal plans, so as to obtain available Federal assistance. (State responsibility.)

● Authorize the Public Housing Administration to enter into contracts for 35,000 additional units of low-rental housing in each of the next two fiscal years.

EDITORIAL NOTE: Copies of the Economic Report are available at 60 cents each from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

(Continued on page 27)

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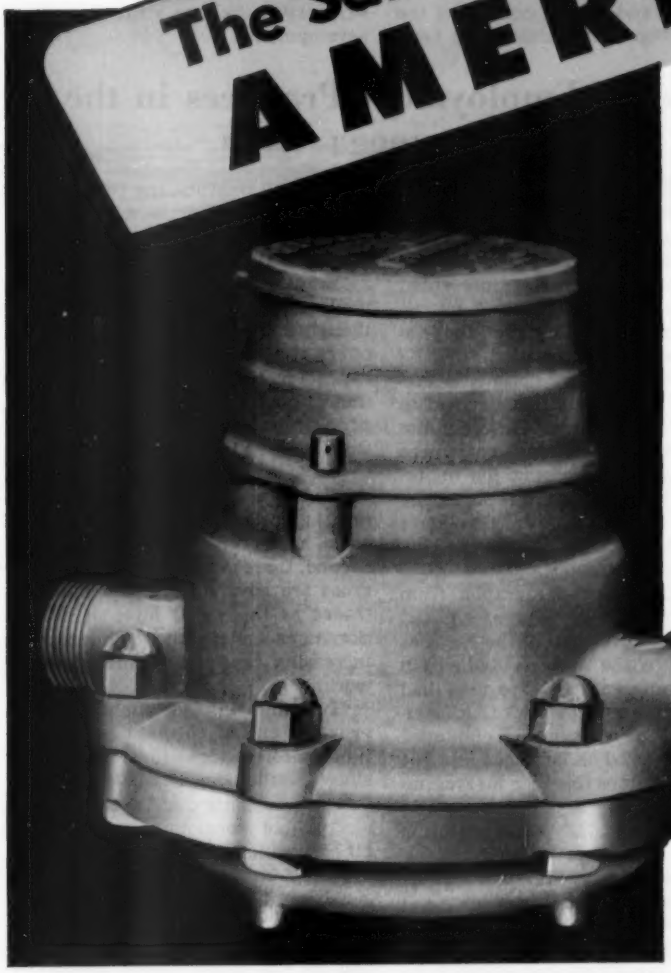

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Toronto "Metro" Chairman Reports On First Year

TORONTO'S experiment in metropolitan government—representing 13 autonomous municipalities—is just a year old; and 1955 may be its biggest test, according to Metro Council Chairman F. G. Gardiner.

In the past 12 months, the record is impressive. He cites what has been done, what's under way to facilitate growth without growing pains for one of the fastest-stepping areas on the Continent.

The record, in part: waterworks facilities under construction or authorized will be completed in the next five to seven years, servicing the entire area; sewage treatment, sewage-disposal plants are planned where needed; traffic headaches are getting major attention, functional Lakeshore Expressway plans completed, arterial roads, street widening, bottle neck removals under way or planned.

The "Metro" has also started construction on a 5-10-year housing program for the aged and has developed plans for a new juvenile and domestic court. It has formed a partnership with Federal and Provincial Governments for housing purposes and is working toward more green belts, including an 18-hole golf course. During the year, Toronto Metro borrowed its first $30,000,000 "at a favorable rate," then another $26,000,000 "at a more favorable rate," saving an estimated $2.3 millions for the common coffers.

From the February 1955 issue of *The Listening Post*, bulletin of the Canadian Federation of Mayors and Municipalities. For a description of Toronto's new metropolitan form of government see THE AMERICAN CITY for June 1953, pages 83 and 84.

Race Segregation Outlawed in City and State Parks

RACE SEGREGATION in municipal and state parks and playgrounds is just as unconstitutional as segregation in the public schools, according to a recent decision by a United States court — the Fourth Circuit Court of Appeals in Richmond, Va. The opinion, which was delivered on March 14, states that the May 1954 Supreme Court decision outlawing segregation in the public schools "swept away" any basis for keeping races separated in municipally and state-owned parks and playgrounds.

The decision, according to an Associated Press dispatch, resulted from two petitions having been placed before a Baltimore (Md.) court. The petitions asked that the City of Baltimore and the State of Maryland be prohibited from enforcing race segregation at the beach and bathhouse facilities at Fort Smallwood Park, which is operated by the City of Baltimore, and at similar facilities at Sandy Point State Park and Beach, operated by the State of Maryland.

University Farm to Become a Residential Community

CARL E. GARDNER, land planning consultant and former director of the Chicago Plan Commission, has been appointed to help lay out the final design for residential and community development on the University Hill Farm area, the University of Wisconsin announced on March 2.

Mr. Gardner will work closely with Richard U. Ratcliff, land development specialist in the School of Commerce; Walter Johnson, Madison planning engineer; and the Wisconsin State Planning Division, in designing an attractive, complete, and modern community for the Hill Farm area that will be a real contribution to the City of Madison, the announcement stated.

The Wisconsin Legislature has authorized the University regents to sell the Hill Farm and replace it with research farms in rural areas. Madison's record growth has almost surrounded the area with residential developments.

Negro Employment Practices in the Chattanooga Area

STUDIES of present employment practices and the part that the Negro might play as a vital and effective factor in the expansion of the Southern economy are presented in a book * released March 7 by the Committee of the South of the National Planning Association.

Perhaps the most optimistic section of this report is that devoted to the Chattanooga area. Here definite indications of declining prejudices and gradually increasing job opportunities for Negroes are reported by William H. Wesson, Jr., Professor of Economics and Commerce, University of Chattanooga.

Here are three paragraphs from NPA's abstract:

"Although over half of the Negroes employed by the 25 firms studied (in the Chattanooga area) are unskilled workers, the report shows that semi-skilled Negro workers are employed in 20 plants and skilled ones in eight —the two groups together making up almost two-fifths of all Negro workers in the area. In 10 of the firms Negroes hold supervisory jobs in which they usually direct from one to six members of their own race and have limited authority, not including hiring and discharge. While none of the 25 firms indicated any definite program to provide new job opportunities for Negroes, the report notes that men of both races were frequently found working in the same production classifications.

"Employment by construction companies and railroads in the area, though subject to many limitations, offers the highest-paid job opportunities for Negroes. Two significant indications of changes in admission of Negroes to the building trades were learned through interviews and investigations: First, there is evidence of a slow decline of prejudice against the use of Negroes in some types of construction work. Second, there are indications that Negroes are advancing in the building trades as the racial level of education rises and as they demonstrate increasing capacity for more skilled work.

"Teaching in the public schools provides one of the best job opportunities for college-educated Negroes since Chattanooga has equality both in teachers' salary scales and in the city school pensions system. Most other positions for Negroes in government are subject to limitations similar to those in private business. Unusual opportunities exist for small numbers of them—as exemplified by the seven Negro policemen in Chattanooga—but these cases, the report notes, have greater importance as symbols of change than as evidence of widespread alteration of employment practices."

* *Selected Studies of Negro Employment in the South.* National Planning Association, 1606 New Hampshire Ave. NW., Washington 9, D. C. 483 pp. $5.50.

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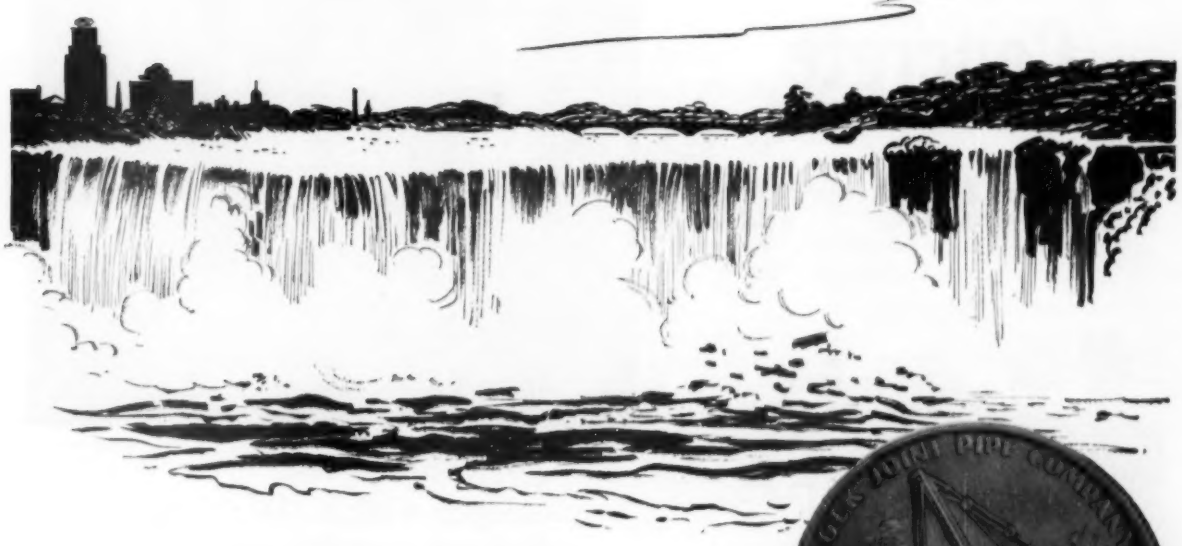

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Increasing Number of Cities Have Own TV Shows

BANGOR, MAINE, has begun a 15-minute television program to give its citizens information every week about what is going on in their city government, the International City Managers' Association reports.

Bangor thus joins a growing number of cities that have used TV to acquaint the public with local affairs. Cincinnati, Ohio, has a weekly show, "The City Manager Reports." Peoria, Ill., sponsored a 13-week program, "Municipal Report." "This Is Kansas City, Mo.," is the title of another city-produced TV program. Chico and Butte County, Calif., have had a half-hour program every two weeks. Los Angeles County, Calif., has prepared one-minute newsreels on municipal activities for showing on television.

Other cities known to have made use of television include Phoenix, Ariz.; Philadelphia, Pa.; Des Moines, Iowa; Greensboro, N. C.; Toledo and Dayton, Ohio, and Milwaukee, Wis. In addition, one city—St. Petersburg, Fla.—has its own TV station and uses some of the broadcasting time to program municipal interest shows. New York City has a permit to build a TV station, and Jacksonville, Fla., has filed an application for permission to build its own TV station.

Bangor's Program

Bangor's program — "This Is Your City" — comes on every Sunday from 12:45 p.m. to 1 p.m. It costs the city nothing, except the time that city employees put into getting ready for it. Local station WABI-TV not only furnishes the time but also donates the services of a staff photographer who takes still shots for use as illustrations during the regular show.

The first program featured an explanation by the city manager of how the city is organized. The second one was devoted to how local laws are made, and three members of the city council appeared with the city manager to discuss how the council operates and to touch on current legislative problems. Forthcoming programs are planned to include interviews with heads of various city departments—public works, health, etc.

The city will also ask listeners to send in questions, and one Sunday out of every four or five will be spent answering those questions.

Officials judge that the program takes about an hour to prepare. During that time, the persons who are to be featured on the show get the general outline *ready*, in note form only. No regular script is used. The discussion is off-the-cuff.

See review of publication, *Municipal Regulations, Taxation* and *Use of Radio and Television*, on page 191 of the March issue.

Baltimore Extends Its Fight on Slums and Blight

HHFA Administrator Albert M. Cole announced that Baltimore, Md., nationally known for its leadership in the fight against slums and blight, has made the plans and set up the machinery necessary to rid the city of its remaining slums, to rehabilitate worn-out sections, and to prevent the recurrence of blight.

In so doing, it has received Administrator Cole's approval of the workable program developed by Baltimore, thereby becoming eligible to apply for the various types of federal assistance provided by the Housing Act of 1954 for such communities.

Further details are available in a February 27, 1955, release (No. 814) of the Housing and Home Finance Agency, Washington 25, D. C.

Syracuse Offers Summer Workshops

AT Syracuse University this year there will be summer workshops on Human Relations and Intergroup Education (July 5 to August 12), on Juvenile Delinquency and on Community Organization for Action (July 25 to August 12).

The workshop on *community organization for action* will give to the person employed in a direct service agency or organization—such as a public health department, a school system, or a social agency — specific answers to daily problems, and it will analyze methods and processes involved when groups meet to solve larger problems. For further information address Professor Kenneth W. Kindelsperger, Summer Workshop on Community Organization for Action, 305 Maxwell Hall, Syracuse University, Syracuse 10, N. Y.

The *human relations* sessions are open to not more than 40 teachers, school administrators, and community workers, who wish to develop specific programs to promote good intergroup relations. Further information may be obtained from Charles V. Willie, Resident Director of the Workshop, Maxwell Hall, Syracuse University.

The workshop on *juvenile delinquency* is designed primarily for teachers, parents, social workers, and others working with children; and it will present current ideas from sociology, psychology, psychiatry, and social work, on the prevention and treatment of delinquency. Interested persons should address inquiries to Dr. Nathan Goldman, Department of Sociology, Syracuse University.

Kalamazoo College to Specialize in Municipal Administration

KALAMAZOO COLLEGE has announced the establishment of an Institute of Government, full operation of which will go into effect in September, and the appointment of Dr. Carl H. Chatters as staff member of the Institute and Professor of Municipal Administration and Finance.

The Institute will provide a graduate program for the Master's degree in public administration. For the past 21 years, Kalamazoo College has maintained a cooperative venture between the College and the city government through the Bureau of Municipal Research. The Bureau will remain a separate entity, and the Institute will be a new division of the political science department. The Institute will be designed to provide services for all governmental units in southwestern Michigan and will make its facilities available to supplement the present program of the Bureau, which serves Kalamazoo only.

The four chief functions of the Institute will be: (1) a graduate school in public administration; (2) a research and consultant service for local governments beyond Kalamazoo; (3) in-service training program for local government employees; and (4) handling of specific projects on various local government problems.

Dr. Chatters is well known, of course, to many readers of THE AMERICAN CITY as a former executive director of the American Municipal Association and previously of the Municipal Finance Officers Association. His host of friends will wish him abundant success in his important new post and in his municipal consulting work for which he will still be available on a part-time basis.

Refuse Collection & Disposal

Two Fills for Henrico County

HENRICO COUNTY, VA., operates two sanitary landfills. The eastern fill is on 2 acres of land, 2 miles east of Lanel. An International TD-14A tractor with a Drott Skid-Shovel digs a trench 250 feet long, 25 feet wide, and 15 feet deep. About 80 truckloads — 1,000 cubic yards — of garbage go into the fill daily.

The western fill is on 6 acres that lie behind the county garage. This fill receives about 275 cubic yards of refuse daily. The same model tractor, carrying a Drott Bullclam, does the work. At both sites, the refuse is covered every night with 1 foot of earth. The final cover is 3 feet thick.

Henrico County has a population of about 15,000. The charge for garbage pickup is $1.50 per month and is added to the cost of the water bill.

On landfill duty at the eastern dump of Henrico County, a tractor-shovel dozes refuse into a trench for compaction.

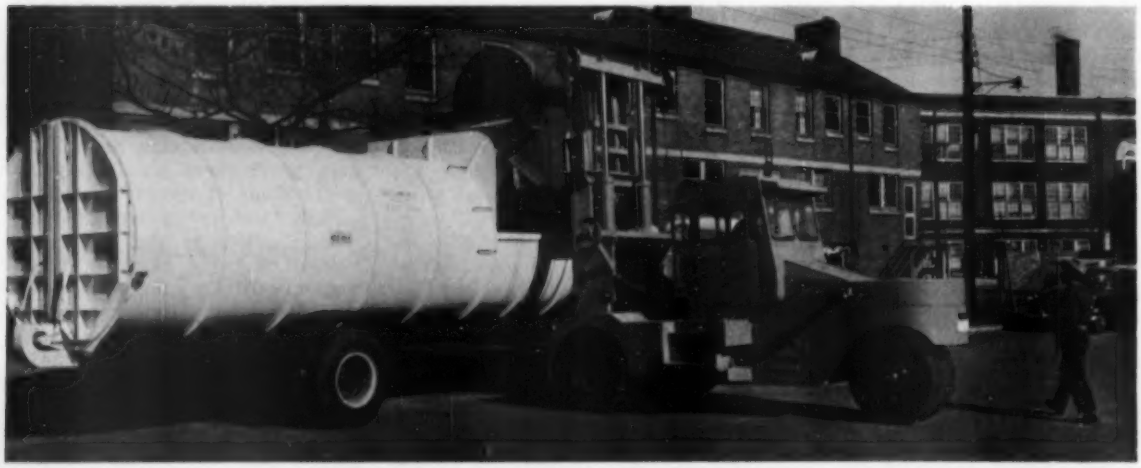
At the county's western dump a bullclam is in charge. The two sites handle about 1,275 cubic yards of refuse per day.

Hand-in-Glove Refuse Operation

TWO refuse-collection units have been coordinated in a hand-in-glove operation that radically reduces hauling costs in Knoxville, Tenn. Here, a Dempster-Dumpster collection unit with a detachable container makes the small pickups required by the city's schedule; a Pak-Mor trailer unit stands by to receive the loads which the smaller unit empties into the trailer body.

Powered by a 100-hp industrial engine, the trailer is completely independent of its tractor. Its packer plate compresses the refuse which the Dumpster unloads to the rear of the trailer under 25 tons of pressure. To unload, rear doors are opened and the packer plate expels the entire load.

By this combined use of the two vehicles, Knoxville has been able to organize its collection routes and handle peak loads more efficiently. The added capacity of the Pak-Mor unit has cut down on the hauling trips to the disposal area.



The 6-cubic-yard apartment type Dempster-Dumpster is ready to deposit its load into the 32-cubic-yard Pak-Mor trailer.

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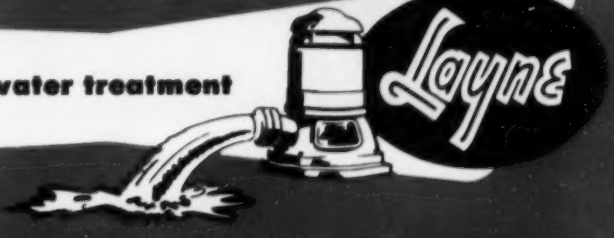

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73	79	85	91	97	113	119	125	131	137
74	80	86	92	98	114	120	126	132	138
75	81	87	93	99	115	121	127	133	139
76	82	88	94	100	116	122	128	134	140
77	83	89	95	111	117	123	129	135	141
78	84	90	96	112	118	124	130	136	142

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How the Diatomite Filter Works

73 Pre-coating, filtering and cleaning of diatomite filters used in municipal waterworks and swimming pools, is shown clearly in three necessary steps in *Bulletin No.* 5502. The bulletin discusses diatomite filter operations in simple, non-technical language, illustrating each step with a detailed diagram. For a free copy, write THE GENERAL FILTER CO., AMES, IA.

These Park Amusements Increase Revenues

74 Installed in parks, zoos and public playgrounds, Allan Herschell merry-go-rounds, tanks, boats and other amusement rides attract large crowds and bring in revenues. The rides are clean, cause no litter, and will improve the appearance of any outdoor operation. They are easy to operate and require minimum maintenance. For an illustrated catalog describing the Sky Fighter, Jolly Caterpillar and other amusements, write ALLAN HERSCHELL CO., INC., NORTH TONAWANDA, N. Y.

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75 Municipal water plants using an Omega Fluoridizer get not only a dependable fluoride feeder but a dust-free, bag-loading hopper as well. The Fluoridizer is described and illustrated in literature from the OMEGA MACHINE CO., 358 HARRIS AVE., PROVIDENCE 1, R. I.

Fast-Working Street Flushers

76 Dust and debris are sent directly to the sewer by the high-pressure streams of water from an Etnyre street flusher. This efficient unit cleanses streets up to 42 feet wide in one trip, facilitating frequent cleaning. It may also be used to clean sewers, fight fires and sprinkle dusty surfaces. Full details are available from E. D. ETNYRE & CO., OREGON, ILL.

Keep Municipal Records in Easy Reach

77 Placed in new Virginian Line Cabinets, municipal records are readily accessible for quick reference and easy posting. The cabinets are designed in large capacities with wide label holders, slanted for improved visibility, and more finger space. Stands are available which match the cabinets in both color and design. For full details, get *Brochure No.* 1040 from ACME VISIBLE RECORDS, INC., CROZET, VA.

Converts Brush into Wood Chips

78 You can cut your city's brush disposal costs right down the middle with an economical Fitchburg Chipper. The new "brush eater" saves man hours and eliminates hauling and burning costs. Chips are left "on the spot" or blown to the side of the road. A new *Chipper Booklet* is available, without cost, from the FITCHBURG ENGINEERING CORP., DEPT. AC-35, FITCHBURG, MASS.

New Truck Self-Loader Does Many City Jobs

79 A new, hydraulic truck self-loader with attachments is ideal for refuse removal, street sweeping, stockpiling and natural bank loading, and plowing and loading snow. Only one man is needed to operate the LoDaL unit. It is fully described and illustrated in literature from LoDaL, INC., WALNUT ST., NORWAY, MICH.

Free Sample of Kleen-type

80 This new type cleaner for typewriters is available in narrow strip form. Applied to the platen, with the ribbon set on stencil position, it provides clean, easy-to-read type. For a free sample of Kleen-type, write the UNDERWOOD CORP., ONE PARK AVE., NEW YORK 16, N. Y.

Low-Cost Refuse Collection

81 The TRIAD SALES CO. suggests six reasons why your city's sanitation department will benefit from lightweight Hydepak refuse collection trucks. These are low initial cost, full hydraulic packing, minimum maintenance, a rapid packing cycle, a 45° dumping angle, and full automatic control. For all the facts, address the company at 3918 HARRY HINES BLVD., DALLAS 7, TEXAS.

New Backhoe Digs Deeper, Loads Higher

82 A hydraulically-operated telescopic boom on the new Model C-10 backhoe enables the unit to dig up to 10½ feet deep and load up to 8 feet high. The backhoe is designed with a parallel circuit-control valve for multi-cylinder operation. Its hydraulically-controlled main frame features 6½ feet of ground contact and 16 linear feet of ground penetration. For complete information, write the HENRY MFG. CO., INC., 1706 N. CLAY ST., TOPEKA, KANS.

Facts About Mercury Street Lighting

83 Prepared as a practical reference for municipal officials responsible for planning and procuring new street-lighting systems, this new Engineering Guide includes technical data on mercury lamps, up-to-date information on available luminaires, operating characteristics of mercury vapor lighting systems, and a discussion of methods for the economic evaluation of alternative lighting systems. Get your copy of *Bulletin B-6064* by writing the WESTINGHOUSE ELECTRIC CORP., P. O. Box 2099, PITTSBURGH 30, PA.

Pneumatic Sponge Pumps

84 Use the new BJ pneumatic sponge pump in caissons, sumps, cisterns, pits, tanks, ditches, manholes and wherever sand and abrasives are found. This lightweight portable sump pump never needs priming. You simply hook it up to any 105 or 125-cfm air compressor, connect the air hose and water discharge hose, and the pump is ready to operate. The unit provides capacities up to 380 gpm and operates against heads up to 76 feet. For *Bulletin No.* 543-3-900, write the BYRON JACKSON CO., PUMP DIV., P. O. BOX 2017, TERMINAL ANNEX, LOS ANGELES 54, CALIF.

New Refuse Containers Won't Leak or Rust

85 The sturdy, leakproof construction and Lok-Tite cover of Nesco Streak-O-Strength refuse cans discourage animals and insects and encourage more sanitary refuse collection. The Lok-Tite cover sheds water and the unit's concave bottom prevents rust. Oversize handles facilitate easy handling by refuse collectors. Nesco refuse cans are available in 16-, 20-, 24- and 32-gallon sizes. Write NESCO, EXECUTIVE OFFICES, MILWAUKEE 1, WIS.

A Swimming Pool Paint That Dries Overnight

86 Paint concrete and metal swimming pools with Pool-Cote, an economical chlorinated rubber base paint that provides maximum color-fastness under constant submersion. Available in 10 colors, Pool-Cote brushes on easily and dries overnight. It is not affected by pool chemicals and won't powder, flake or peel. A description of Pool-Cote is contained in *Catalog No. 3C.* Write the MODERN SWIMMING POOL CO., INC., 1 HOLLAND AVE., WHITE PLAINS, N. Y.

(Please turn to page 34 for more Bulletins)

Obtain these Booklets Free of Charge!

Write directly to the manufacturers or use the coupon on page 33

Small Survey Transit A Giant Performer

87 Ideal for large and small surveying jobs under the roughest field conditions, the Wild T-1 Optical Repeating Transit features an optical micrometer that eliminates reading errors. Both circles read from a single position through a microscope alongside the telescope eyepiece. Illumination is provided by daylight mirror or, at night, by battery attachment. Write WILD HEERBRUGG INSTRUMENTS INC., MAIN and COVERT STS., PORT WASHINGTON, N. Y.

Controls Street Lights Automatically

88 Fisher-Pierce controls go into action the moment daylight drops, assuring dependable, automatic illumination of all your streets. These photoelectric controls operate regardless of the season or the weather. Economical to install, they combine long service with an extremely low failure rate. THE FISHER-PIERCE CO., 94 PEARL ST., S. BRAINTREE, BOSTON 85, MASS., will furnish full information.

Long-Wearing Traffic Lamp

89 The V-Beam, a long-wearing traffic lamp designed in conformance with ITE standards, is offered by the Duro-Test Corp. The lamp combines concentrated centerbeam output with durable 4,000 to 6,000 hour life. It provides safe lighting and reduced maintenance costs. For additional data, write the DURO-TEST CORP., NORTH BERGEN, N. J.

Simplifies Pipe Threading Operations

90 Pipe threading work in city waterwork's maintenance shops is done faster and easier when crews apply the new Power Grip Wrenchless Chuck. Quickly adapted to your present machines, the chuck holds pipe, rods and bolts with a "Bulldog" grip, eliminating hammering, slipping and locking. The new power grip rocker jaws handle pipe ⅛- to 2 inches in diameter, and rod or bolt stock, ¼- to 2 inches in diameter. Write BEAVER PIPE TOOLS, INC., WARREN, OHIO.

New Jack-Mounted Flasher

91 For efficient, long-lasting flasher operation in stop signs, loading zones, warning beacons, traffic islands, caution signals and detours, the Time-O-Matic Co. features a jack-mounted flasher with nylon gear and built-in eliminators. Available in single or two circuit models, the complete unit consists of flasher and panel with fuse, enclosed in a standard glass-covered meter housing. Specifications and prices may be obtained from the TIME-O-MATIC CO., 1108 BAHLS ST., DANVILLE, ILL.

These Fire Hydrants Are Easy to Maintain

92 Quickly serviced by one man without special tools or heavy rigs, Eddy fire hydrants offer dependable operation with minimum maintenance. Drip action positively drains the standpipe, safeguarding against freeze-ups. Large waterways open smoothly with the pressure and close without water hammer. Send for full information to the EDDY VALVE CO., WATERFORD, N. Y.

The Story of Clean Sewers and Clean Water Mains

93 This new 48-page booklet gives you the story of sewer cleaning, simplified so that everyone can understand; comprehensive enough to cover all the problems. It carries full details about power cleaning machines, the SeweRodeR, hand tools and all accessories. In addition you get instructions on water main and culvert cleaning methods. Write the FLEXIBLE SALES CORP., 3786 DURANGO, LOS ANGELES 34, CALIF., and ask for the combination catalog *No. 55A* for sewer tools, and *No. 44B* for water main cleaning tools.

Drafting Lettering Machine

94 Any typist can do a fast, neat, legible lettering job with the new Vari-Typer offered by the RALPH C. COXHEAD CORP., 720 FRELINGHUYSEN AVE., NEWARK 5, N. J. This economical drafting lettering machine features a universal keyboard with hundreds of instantly changeable type styles. Easy-to-operate, it handles tracings 12 feet wide and over, and may be used for any method of duplicating or reproduction. Write for *Vari-Typer Booklet E-28*.

Prefabricated Toll Booths

95 When housed in prefabricated Taller & Cooper self-contained booths, city employees are safe from the vagaries of weather and motorists, and can devote themselves to the swift, efficient collection of tolls. The functionally designed structures may be installed in hours, eliminating weeks of on-the-site construction. Booths for parks, parking lots and bridges, together with other toll collection equipment and complete collection systems, are described in literature from TALLER & COOPER, INC., 75 FRONT ST., BROOKLYN 1, N. Y.

New Photocopy Paper Stays White Longer

96 Greater resistance to pre-fogging in both incandescent and fluorescent lighting is provided by a new photocopy paper available from the AMERICAN PHOTOCOPY EQUIPMENT CO., 1920 W. PETERSON AVE., CHICAGO 26, ILL. The new paper stays white longer, offers sharper copy and higher contrast, and speeds the entire photocopying procedure. It permits the operation of photocopy equipment in much brighter areas than was previously possible. Write for literature.

Speeds Location of Buried Valves

97 Locating a buried valve, manhole cover or other enlargement of a pipeline is easy with the new Wilkinson line locator. This sturdy one-man tool consists of a transmitter, receiver, connecting handle, drop handle, head phones and direct cable. Where operations require the use of two men, the instrument is separated from the handle, with one man carrying the transmitter and the tracer carrying the receiver. Information on the complete Wilkinson line locator with carrying case may be obtained from the WILKINSON PRODUCTS CO., 3987 CHEVY CHASE DR., PASADENA 3, CALIF.

Quality Equipment Assures Low "Last Cost"

98 Municipal leaders explain why the overall cost of a job or equipment must be considered and why the low bid is not necessarily the best one, in a new 12-page booklet from the CATERPILLAR TRACTOR CO., PEORIA, ILL. The booklet, "Look at the Last Cost First," shows how dependable Cat equipment, designed for easy operation and low maintenance, proves the most economical in the long run, saving municipalities both time and money. Write for *Booklet D503*.

Diesel Engines

99 Operating on oil, oil and gas, dual fuel and spark ignition gas, Worthington DR diesel engines provide economical power for water-works, municipal power plants, sewage-treatment plants and pipeline pumping stations. The 5-, 6-, 7- and 8-cylinder engines are available in various ratings from 550 to 2,200 hp. All are described in *Bulletin No. S-500-B52B*. For your copy, write the WORTHINGTON CORP., ADVERTISING & SALES PROMOTION DEPT., HARRISON, N. J.

Firemen Like This Breathing Apparatus

100 A Scott Air-Pak delivers pure, cool air (not oxygen) through a demand-type regulator, offering a fireman complete protection in all hazardous atmospheres. The regulator automatically provides the volume required both at rest, or under extreme exertion. It cannot be "out breathed," and may be operated in temperatures as low as 20° below zero. For full data, address the SCOTT AVIATION CORP., 191 ERIE ST., LANCASTER, N. Y.

Air Compressors

101 Jaeger has replaced its 105-foot air compressor with a 125-foot unit which holds 90-100 pounds of pressure in two heavy paving breakers. This new machine enables men and tools to do from 30% to 40% more work. Other Jaeger compressors include 75-, 185-, 250-, 365- and 600-foot units. Write for *Catalog JC-1* to THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

Stops Corrosion

102 End water and gas line leaks due to corrosion with An-Spec Magnesium Anodes, advises the PIPE LINE ANODE CORP., P. O. Box 471, TULSA, OKLA. An-Spec anodes will protect all of your underground or submerged metal structures from corrosion. This company will supply high-quality magnesium anodes, experienced installation crews and competent engineering. Write for literature.

New Concrete Cutter Speeds Street Repairs

103 Let the inexpensive, 7½-hp Di-Met concrete cutter help you on all of your street repair and maintenance jobs. The lightweight Model 100 is easy to handle in close quarters. The blade mounts on either spindle end and is raised and lowered hydraulically. An accessory coolant tank is available for independent water sources. For complete information, write the FELKER MFG. CO., TORRANCE, CALIF.

(Please turn to page 40 for more Bulletins)

New AUTOFLOW

102V Semi-Actuated Control

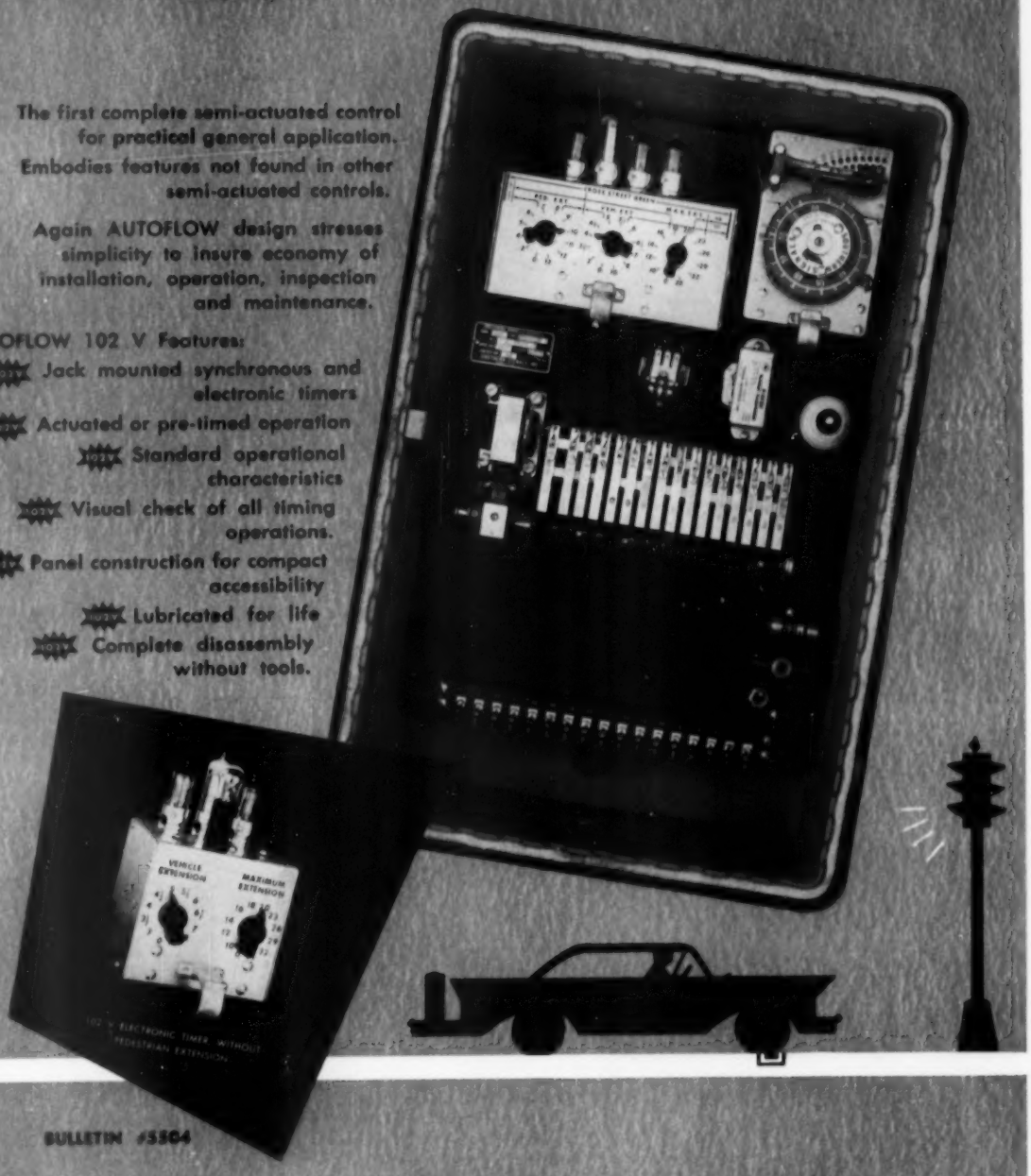
The first complete semi-actuated control for practical general application.

Embodies features not found in other semi-actuated controls.

Again AUTOFLOW design stresses simplicity to insure economy of installation, operation, inspection and maintenance.

AUTOFLOW 102 V Features:

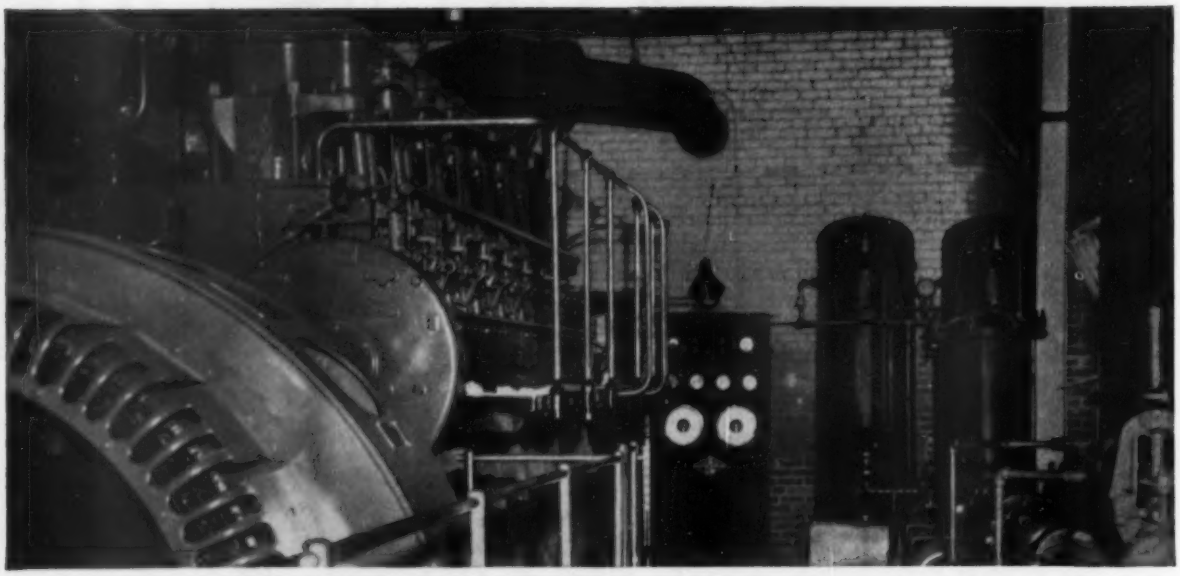
- Jack mounted synchronous and electronic timers
- Actuated or pre-timed operation
- Standard operational characteristics
- Visual check of all timing operations.
- Panel construction for compact accessibility
- Lubricated for life
- Complete disassembly without tools.



BULLETIN #5304

SOUTHERN Signals INC.

222 BEACH STREET • BOX 1303 • SHREVEPORT, LOUISIANA

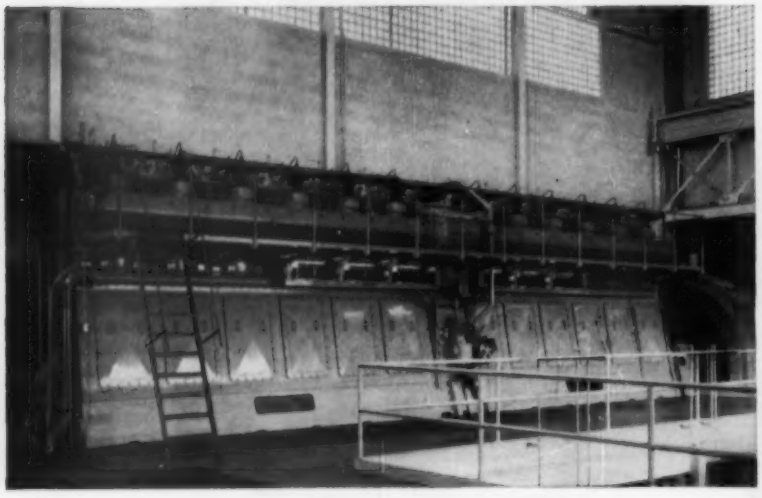


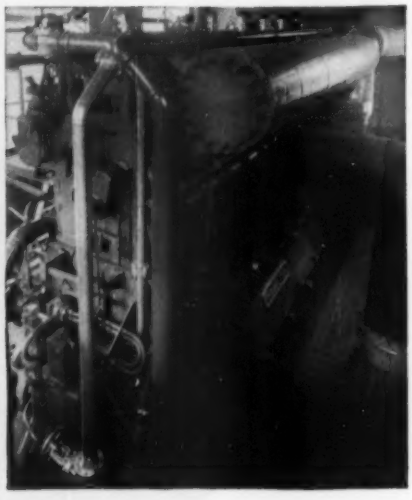
BALDWIN

600 SERIES

12¾ x 15½ turbocharged diesels with 6 or 8 cylinders. Develop 520 to 1750 hp at 514 to 625 rpm.

QUAKERTOWN, PA., switched to diesel power generation with this 1560 hp Baldwin and saved three ways . . . (1) Initial cost was appreciably less than alternative boiler and turbine. (2) Medium speed (600 rpm) Baldwin is very economical in use of fuel and lube oil. Total operating costs, including amortization, are 60% less than purchased power. (3) Ready availability of the Baldwin for standby service has cut weekend operating costs 25%.





HAMILTON

21½ x 27½

diesel and dual fuel engines. Available in 5 to 12 cylinders with a net horsepower range from 2350 to 5450.

WRITE for more facts about these B-L-H diesels that are your most economical and dependable power generating source in the 500 to 20,000 kw range.

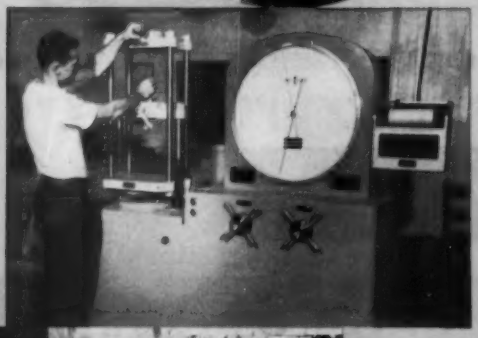
DECATUR, IND. (Heavy Fuel) This 3810 kw Hamilton 21½ x 27½ engine operates 18 to 20 hours daily burning heaviest residuals with an *absolutely invisible exhaust*. There's been no unusual piston ring or liner wear. Decatur's fuel cost is just 4.6 mills per kwh.

ROBSTOWN, TEX. (Dual Fuel) This 2050 kw Hamilton 21½ x 27½ engine has been performing efficiently on dual fuel since 1952. Equally high efficiency is reported for two newer, 9 cylinder, Hamilton dual fuel engines like this at Great Bend, Kansas.

BALDWIN-LIMA-HAMILTON

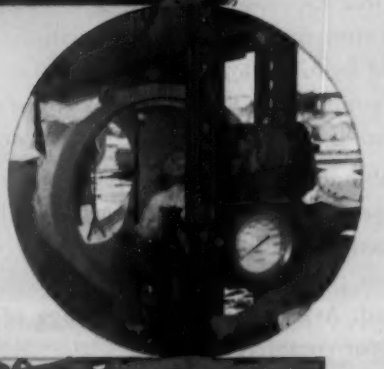
Hamilton Division, Hamilton, Ohio

Standard 6"x 12" test cylinders are made from the same batch of concrete as the pipe, cured with the pipe in the same steam box and are subjected to compression tests.

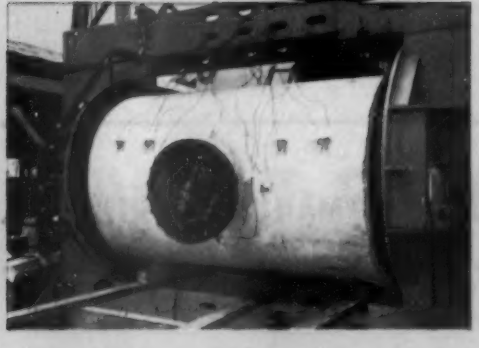


Steel reinforcement rods are tested to determine their physical properties. Stress-strain diagram may be plotted on recorder at right.

Completed pipe sections receiving hydrostatic test. Water pressure is increased until ultimate failure of the pipe section; research engineer makes periodic examinations as pressure goes up.



Resistance to external loadings is determined by careful checking as pipe receives three-edge bearing test.



Strain gauges give accurate record of behavior of pipe components under hydrostatic test.

BETTER PIPE

at a lower cost to you

What this means to you . . .

Improvements in American's reinforced concrete pipe and more economical methods of manufacture and installation are the subjects of unremitting effort by our Research and Development engineers.

Cost. Lowest possible cost to you through efficient utilization of materials.

Quality. Savings, yes, but all pipe must be constructed in accordance with sound and conservative engineering principles.

Safety. A built-in safety factor is always a part of American's engineered products.

Know-how. Product information for you from engineers who KNOW from experience and tests what each class of pipe can do.

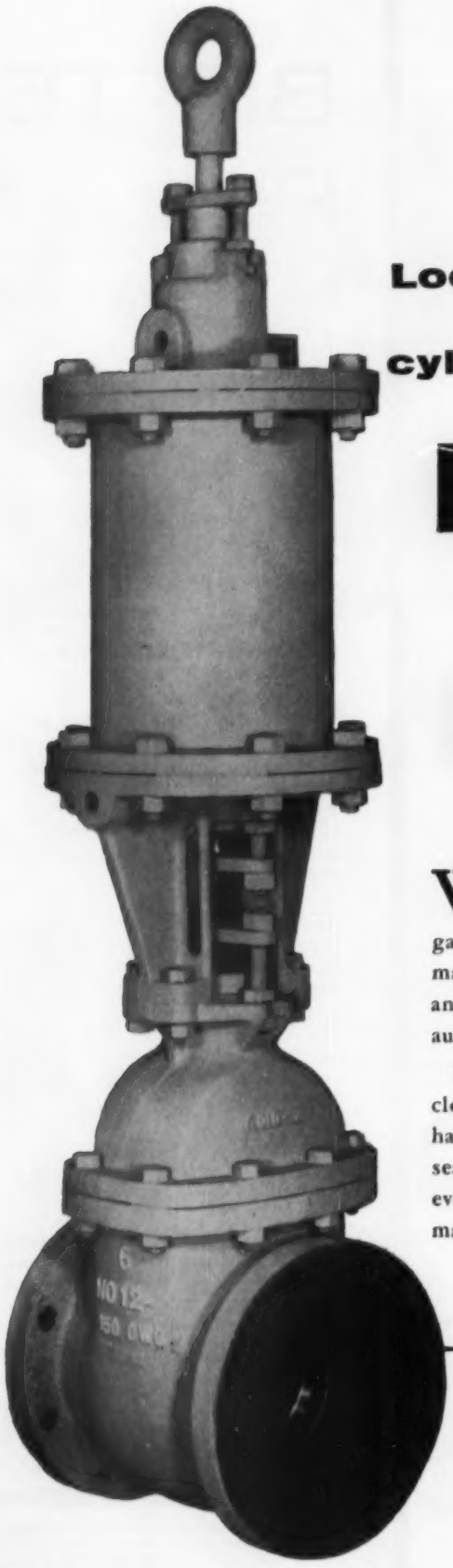
Materials. Highest quality materials guaranteed by American's policy of testing and proving *before* using.

Future. A research program to help solve problems which may confront you in the future.

Take advantage of these plus-factors in your next project—our 45 years of experience in the development of superior pipe products is at your service. Write or phone for any additional information.

American
PIPE AND CONSTRUCTION CO.

Main Offices and Plant: 4635 Firestone Blvd., South Gate, California
District Sales Offices and Plants: Hayward • San Diego • Portland, Ore.
Mail Address: P. O. Box 3428, Terminal Annex
Los Angeles 54, Calif. • Phone: LOgan 8-2271
Concrete pipe for main water supply lines, storm and sanitary sewers, subaqueous pipe lines



Look how this TRADE DARLING MARK cylinder-operated gate valve

...SAVES TIME

...AVOIDS TROUBLE

...CUTS MAINTENANCE

WHERE frequent operation is required... especially in inaccessible locations... Darling cylinder-operated gate valves save time on each cycle of operation. The valve may be operated by air, oil or water. Movement is precise and completely controllable. Action can be either manual or automatic. Control can be either local or remote or both.

Darling's double disc gate valve principle assures tighter closing and longer, service-free life. The fully revolving discs have a wiping action that keeps seat faces clean. The discs seat in a different position with each cycle so that wear is evenly distributed. Available in a broad range of sizes and materials. Write for complete details.

DARLING VALVE & MANUFACTURING CO.
Williamsport 10, Pa.
Manufactured in Canada by Sandilands Valve Manufacturing Co., Ltd., Galt 19, Ontario

BRING ON YOUR RIVERS!

CLOW RIVER-CROSSING CAST IRON PIPE TAKES 'EM "IN STRIDE"!

EASY TO LAY. As easy to make up as a standard flanged joint. Lower labor installation cost because of ease of joint make-up and longer laying lengths.

ONLY A RATCHET WRENCH NEEDED. No split parts. Fewer parts—each joint consisting of one complete pipe, one solid follower ring, one solid ring gasket, bolts and nuts.

FULL 15° TURNING DEFLECTION with absolutely no reduction in the full internal opening area—therefore, no abnormal pressure-drops at deflected joints. Deflection stresses evenly distributed among all the bolts.

LONGER LAYING LENGTHS—approximately 18'6"—faster installation, lower costs. However, lengths may be varied to suit conditions. For example: 6 foot, 12 foot or other special lengths may be advisable to suit required curvature.

Mail coupon for complete information on Clow Ball-and-Socket River-Crossing Pipe. No obligation, naturally.

JAMES B. CLOW & SONS

201-299 North Talman Avenue • Chicago 80, Illinois

☆ Subsidiaries:
Eddy Valve Co., Waterford, N. Y.
Iowa Valve Co., Oskaloosa, Iowa

JAMES B. CLOW & SONS
201-299 North Talman Avenue
Chicago 80, Illinois

Please send me, without obligation, details and specifications of Clow Ball-and-Socket River-Crossing Pipe.

Company_____
Street Address_____
City_____ Zone____ State____
Individual's Name_____
Position_____

1943 . . . A midwestern industrial landmark, which at the turn of the century was the nation's largest tanning center was destroyed by fire with a $500,000 loss. Huge stocks of lumber, paints, oils and furniture were stored in the building. (Int. News Photo)

TODAY...
FIRES ARE FOUGHT BY ATTACK...NOT DEFENSE!

The Man with the Scott AIR-PAK IS IN FAST FOR *FIRE ATTACK!*

YOURS IS A **FIRE ATTACK** DEPARTMENT IF YOU HAVE SCOTT AIR-PAKS ON EVERY FIRE TRUCK

A major requirement for *FIRE ATTACK* is complete breathing protection. That's why Scott Air-Paks are *FIRE ATTACK* equipment. To get in fast, through thick smoke or hazardous fumes calls for experienced firefighters and Scott Air-Paks.

Your men breathing cool, fresh air will save more lives and reduce fire losses to a minimum. Take steps now to make yours a *FIRE ATTACK* Department. Write us for complete information.

SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.
191 ERIE STREET LANCASTER, N. Y.
Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, N. Y.

Catalogs for You

Write directly to the manufacturers or use coupon on page 33

Equipment for All Municipal Departments

104 Many municipal items from traffic signals to water works and sewer supplies and police and fire equipment are discussed and illustrated in *Catalog No.* 152 from W. S. DARLEY & CO., CHICAGO 12, ILL. The 100-page booklet presents full information on a variety of leak locators, drinking fountains, civil defense alarms, and traffic line markers. It features special apparatus for thawing frozen pipe and a complete testing gauge outfit for inspecting your water supply.

Small Trenching Machine

105 Small-size trenchers, weighing from 600 to 1,200 pounds, are easily transported from job-to-job, and may be used to dig trenches for water, sewer and gas lines, street-lighting cable, sprinkler systems, and anode installations. The new Ditch-Witch trenchers feature interchangeable bucket lines, 3, 4½ and 6 inches wide; a closed, self-cleaning and replaceable tooth bucket line; and a reversible spoils chute. They are made by THE CHARLES MACHINE WORKS, PERRY, OKLA. Literature on request.

Facts on Diesel Power

106 Written in non-technical language and illustrated with photographs and diagrams, this new folder takes the mystery out of the diesel engine for city officials interested in this economical power source. The folder explains the simplified fuel injection system exclusive in Sheppard diesels. This system eliminates complicated assemblies and reduces the number of moving parts. It permits any mechanic to service a diesel with the aid of a few ordinary tools. Write the R. H. SHEPPARD CO., INC., HANOVER, PA.

Dependable Surveying Instruments

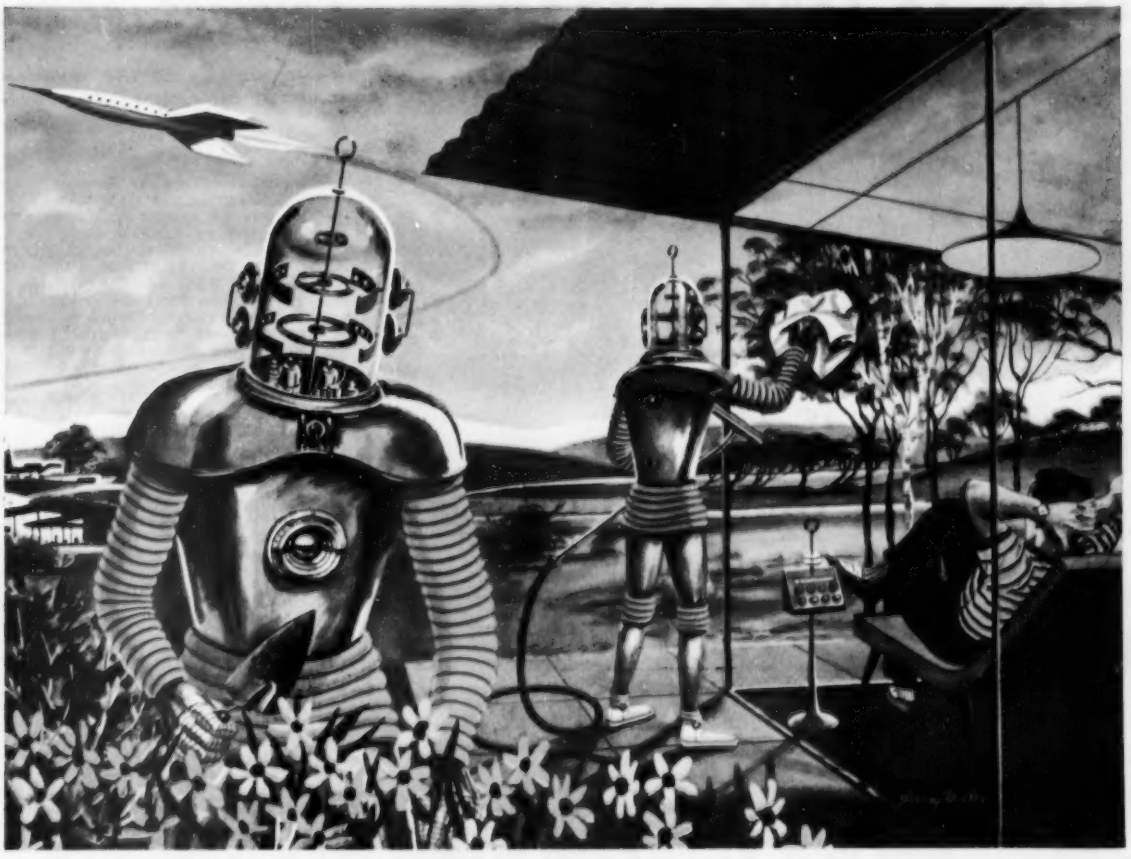
107 Two of the most sought after advantages in surveying instruments, ease of handling and high precision, have been combined in "Kern Aarau" instruments, according to this manufacturer. The company's double-circle theodolite, self-reducing tacheometer, and surveyor's compass with stadia telescope, all offer accurate reading with minimum strain on the eyes. For a detailed description of each instrument, write KERN INSTRUMENTS, INC., 120 GRAND ST., WHITE PLAINS, N. Y.

Two Men Can Set Street-Lighting Poles

108 Any municipal truck can be converted to a complete pole-setting and hole-digging rig with Tel-E-Lect equipment. This company's automatic equipment, including steel truck bodies, self-storing derricks, winches, truck-powered pole hole diggers and pole trailers, permit a 2-man crew to perform a variety of construction and maintenance jobs. Other truck accessories offered by Tel-E-Lect include non-clutching transmissions, power take-offs, and ground-rod drivers. Write TEL-E-LECT PRODUCTS, INC., 10,001 MINNETONKA BLVD., MINNEAPOLIS 16, MINN.

(See page 42 for more Bulletins)

AFTER 28 YEARS' SERVICE



COMPETENT, BLOODLESS WORKERS . . . tireless, economical . . . electronically controlled and directed. These, science predicts, may be our "servants" of the future.

100 years from now...

ROBOTS MAY DO OUR WORK

The years ahead hold many surprises . . . wonderful new products and inventions to challenge the imagination. Then, as now, our water and gas will still be carried by the rugged, dependable cast iron pipe being laid today.

Over 60 American cities and towns are still served by cast iron water and gas mains laid over a hundred years ago. And today, modernized cast iron pipe, centrifugally cast and quality controlled, is even stronger, tougher, more durable.

U.S. Pipe is proud to be one of the leaders in a forward-looking industry whose service to the world is measured in centuries.

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE
CAST IRON

U. S. PIPE AND FOUNDRY COMPANY, General Office: Birmingham, Alabama

A WHOLLY INTEGRATED PRODUCER FROM MINES AND BLAST FURNACES TO FINISHED PIPE.

AFTER 28 YEARS' SERVICE—

In 1925, The Board of Water Supply, city of Providence, laid a water line in Cranston, Rhode Island. Interior surfaces were hand-brushed with hot Bitumastic® Enamel.

This illustration is graphic proof of the extra value you get when you specify Bitumastic Enamel. After 28 years' continuous service, a section of this 48-inch line was removed for inspection.

Note that there is no sign of rust or tuberculation. Brush marks are still visible. The original coefficient of flow has been maintained over the years. With such performance available from Bitumastic Enamel, there is no need to specify over-sized diameter pipe, thus giving important installation as well as operational economies.

Samples of this original 28-year-old Bitumastic Enamel lining were tested. Laboratory analysis showed there was practically no change in the characteristics of the Bitumastic Enamel. This gives every reason to believe that the line will continue to give the same type of dependable performance for many more years.

Service records like this prove that it pays to use strong steel pipe, protected by Bitumastic Enamel. It's an economical combination for your large-diameter water lines. Write for full information.

SEWAGE EQUIPMENT PROTECTION!

Koppers also makes Bitumastic® Protective Coatings for all kinds of sewage-plant equipment. Give your expensive equipment the effective protection it deserves. Write for complete data.

KOPPERS BITUMASTIC® ENAMELS

KOPPERS COMPANY, INC., Tar Products Division

Dept. 422-T, Pittsburgh 19, Pennsylvania

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.

Catalogs for You

Write directly to the manufacturers or use coupon on page 33

New Diesel-Powered Crawler Tractor

109 The advantages of correct weight, balance, long, wide tracks, a low center of gravity and high clearance have been combined in a new crawler tractor available from the ALLIS-CHALMERS MFG. CO., TRACTOR DIV., MILWAUKEE 1, WIS. The diesel-powered HD-9 is designed for more drawbar pull in every speed range. Simple to operate, it is an ideal unit for municipal construction work, road maintenance, stockpiling, and for sanitary landfill operations. Catalog on request.

All Types of Reflectorized Signs

110 The STANDARD SIGN & SIGNAL CO., INC., 470 MAIN ST., CLINTON, MASS., is offering a selection of reflectorized street-name, warning and regulatory signs designed for around-the-clock visibility. These signs won't chip, rust or discolor and require minimum maintenance. The Standard STOP signs are constructed of sturdy aluminum alloy surfaced with Flat-Top "Scotchlite" reflective sheeting. Write for literature.

Low-Cost Way to Dealkalize Water

111 How water can be dealkalized efficiently and economically is discussed in *Publication No.* 4567, a new catalog describing the Cochrane dealkalizing salt splitter. This easy-to-operate equipment eliminates the need for acid and expensive acid-resistant machines. It is quickly connected to the Cochrane control system for fully automatic operation. Write the COCHRANE CORP., 17th ST. and ALLEGHANY AVE., PHILADELPHIA 32, PA.

New Power Sod Cutter

112 Operated by one man, the new Ryan Auto-Cut-Off Power Sod Cutter will cut sod at the rate of 15 square yards per minute, automatically measuring and cross-cutting in the same operation. The unit features dual rear wheels that have been castered for maneuverability and can be locked in a straight-on position. Also a free-wheeling clutch which facilitates easy moving, forward or back. Get full details from the RYAN LANDSCAPING EQUIPMENT CO., 871 EDGERTON ST., ST. PAUL, MINN.

Sludge Pumps

113 A dependable, low-cost way to recirculate, draw-off and transfer sludge in your municipal sewage treatment plant, is to install a number of Marlow plunger sludge pumps. Marlow pumps are designed with single, double, triple and quadruple plungers for all kinds of heavy sluggish pumping. They feature 360 to 30,000 GPH standard displacement. For complete information, write MARLOW PUMPS, DIV. OF BELL & GOSSETT CO., RIDGEWOOD, N. J.

Clamshell Buckets

114 The complete line of Haiss Multi-Sheave clamshell buckets, including general purpose and high power digging buckets as well as trenching buckets with ¼ and ⅛ cubic yard capacity, are described and illustrated in *Bulletin No. H-1954*. For your copy, write the GEORGE HAISS MFG. CO. INC., 350 FIFTH AVE., NEW YORK 1, N. Y.

(See p. 44 for more Bulletins)

WHO knows your local working and building conditions better than the officials of your own community?

Temperature, rainfall, ground water tables, and the composition of the soil— all these and many more *local* factors affect the construction of *local* building sewers.

Familiarity with your own individual conditions is just one more reason why the plumbers and other craftsmen in your community do such an excellent job of installing *permanent* building sewers. And their favorite material, as always, is Vitrified Clay Pipe. It permits local plumbers to guarantee their work, because the entire pipe is guaranteed— barrel, bell, and spigot—for 50 years. Yes, Clay Pipe meets the highest standards of craftsmanship and permanence. *It never wears out!*

Why take chances with substitute sewerage materials?
Vitrified Clay Pipe has the *proven* quality worthy of your local plumbers' skill.

Vitrified
CLAY
PIPE

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1520 18th St. N. W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

C-255-2A

$50,000

We can help your City or County also on Workmens Compensation as we are helping such counties as the County of Erie, N. Y.

If you are paying $50,000 or over for Public Liability (including Sidewalk) and are having

TROUBLE

We may be able to help you as we have helped such cities as Norwalk, Connecticut for 3 years and New Haven for 19 years.

For further information, write or telephone

ROBERT F. COLEMAN Inc. 79 John St., New York COrtlandt 7-2436

"...And, we like your new catalog. It helps to have the entire story on a line as complete, and competitive, as Grote's!"
There's a GROTE SIGN for every signing need!

GROTE ENAMELED SIGNS are made of heavy gauge, rustproof steel . . . finished with three coats of enamel, each separately baked. No chipping, cracking, spall! Letters are screen processed. Attract motorists' attention instantly . . . easily, quickly read!

GROTE REFLECTORIZED SIGNS have Grotelite SS reflective sheeting on aluminum or steel. Provide maximum target value . . . greatest advance warning to motorist. Made of optical acrylic plastic, Grotelite sheds water, withstands all weather extremes.

* *Grotelite SS is also available in sheets, precut to size . . . in yellow, red, green and silver (white).*

Send Today for Catalog No. 754-T . . . and for Complete Facts on Grote's Reflectorized and Enameled Signs.

Before ordering again . . .

SHOULDN'T YOU EXAMINE THESE FACTS ON GROTE SIGNS?

- **Maximum Attention Value!**
- **More Years of Effective Service!**
- **Extra Strength and Durability!**
- **Guaranteed Waterproof, Colorproof Finish!**
- **Complete Sign Line!**

THE **GROTE** MANUFACTURING COMPANY, INC.

ESTABLISHED 1901 • BELLEVUE, KENTUCKY • OPPOSITE CINCINNATI

Catalogs for You

Write directly to the manufacturers or use coupon on page 33

Street-Lighting Poles, Brackets and Accessories

115 Carco steel light poles, brackets and accessories effectively resist adverse weather conditions and are designed to meet all of the requirements of the I.E.S. street-lighting code. The octagonal pole tubes are fabricated of 11 gauge, hot-rolled carbon steel; the brackets are 2-inch standard pipe, tangent-mounted to the pole tubes; and the pole components and optional accessories are interchangeable. Write the PACIFIC CAR AND FOUNDRY CO., RENTON, WASH.

Vertical Turbine Pumps

116 The vertical design of Johnston turbine pumps will save up to 60% of floor space in any municipal plant. These pumps are designed to start and stop easily and require no priming. Their low maintenance and operating costs make them the perfect buy for cost-conscious municipalities. Write the JOHNSTON PUMP CO., BIN "K", PASADENA 15, CALIF.

Apparatus for Testing Soils, Asphalt and Concrete

117 Every municipal engineer working with soils, concrete, asphalt or construction materials should benefit from this new, 104-page catalog from SOILTEST, INC., 4520 W. NORTH AVE., CHICAGO 39, ILL. The catalog contains descriptions of over 1,250 items—from soil mechanics apparatus to testing equipment for asphalt and bituminous materials. Suggested laboratory layouts are included, along with illustrations of general laboratory apparatus.

Leak Detection Simplified

118 Using this new, pocket-size leak detector and a simple process of deduction and elimination, you can locate costly leaks easily, accurately and in less time. The pocket-size detector is discussed, along with leak detector procedure, in literature from the PRECISION ELECTRONICS CO., 9101 KING ST., FRANKLIN PARK, ILL.

Protects Public Property

119 A variety of products designed to help your city protect public property is available from THE STEWART IRON WORKS CO., INC., 2122 STEWART BLOCK, CINCINNATI 1, OHIO. The company produces chain link wire and iron picket fence, wire mesh partitions, wire window guards, and steel folding gates.

Cleans Trucks and Machinery Quickly

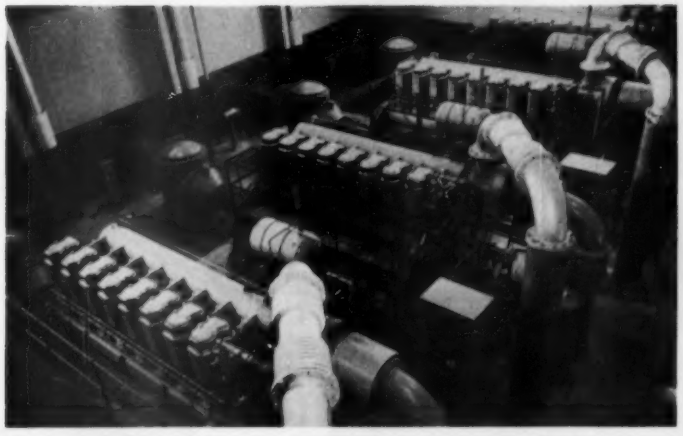
120 Clean all your municipal equipment, including trucks, tractors and other heavy-duty machinery, with the new Model 250 High Pressure Combination Cleaner. The unit features a patented pumping system providing five cleaning actions: high pressure steam; high pressure hot water; dry steam for heating, degassing and thawing; high pressure cold water; and low pressure warm water. Other features include a full-swivel steam gun and a heavy-duty diaphragm pump. Get *Catalog No.* 250 from the MALSBARY MFG. CO., 843 92nd AVE., OAKLAND 3, CALIF.

(Continued on page 48)

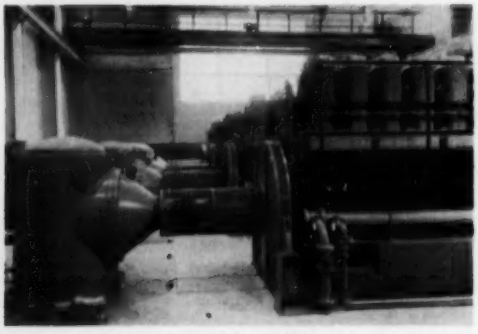
The Oakland storm water pumping station is equipped with four Enterprise Turbocharged Diesels driving huge mixed-flow pumps. Drainage conduits are large enough to drive an auto through.

Early construction stage of new pumping station, heart of the East Bay city's lowland drainage and flood control project.

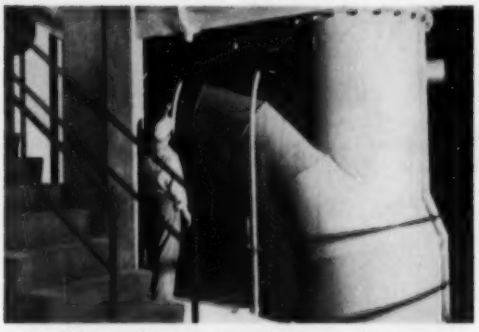
Let it pour! Oakland licks storm flood problem with new diesel pumping plant



The four 1200 BHP Enterprise DSG-318 Engines are completely automatic, require no attendant. Rising water level starts engines, regulates speeds for proper pumping capacity.



Eight-cylinder engines drive giant axial flow pumps though flexible couplings and right angle gears.



650 million gallons of storm water can be pumped through this Enterprise equipped station in 24 hours—a full railroad tank car every second!

Will your city be faced with flooded streets and costly water damage this year? Your flood problem can be prevented by calling in qualified Enterprise engineers now to assist you in planning adequate, independently powered flood control facilities. No matter what pumping capacities you require, there's an Enterprise Engine designed to do the job more efficiently and at lower cost.

Enterprise Engines for every municipal need. Whether it's for flood or water supply pumping systems, stationary or portable electric generating plants, or for sewage disposal, you'll find there's an Enterprise Engine ideally suited for most dependable service. Contact the Enterprise Engine sales office in your area, or write us direct about your problem.

Over a million horsepower at work the world over!

ENTERPRISE dependable ENGINES

THE CHOICE OF POWER EXPERTS

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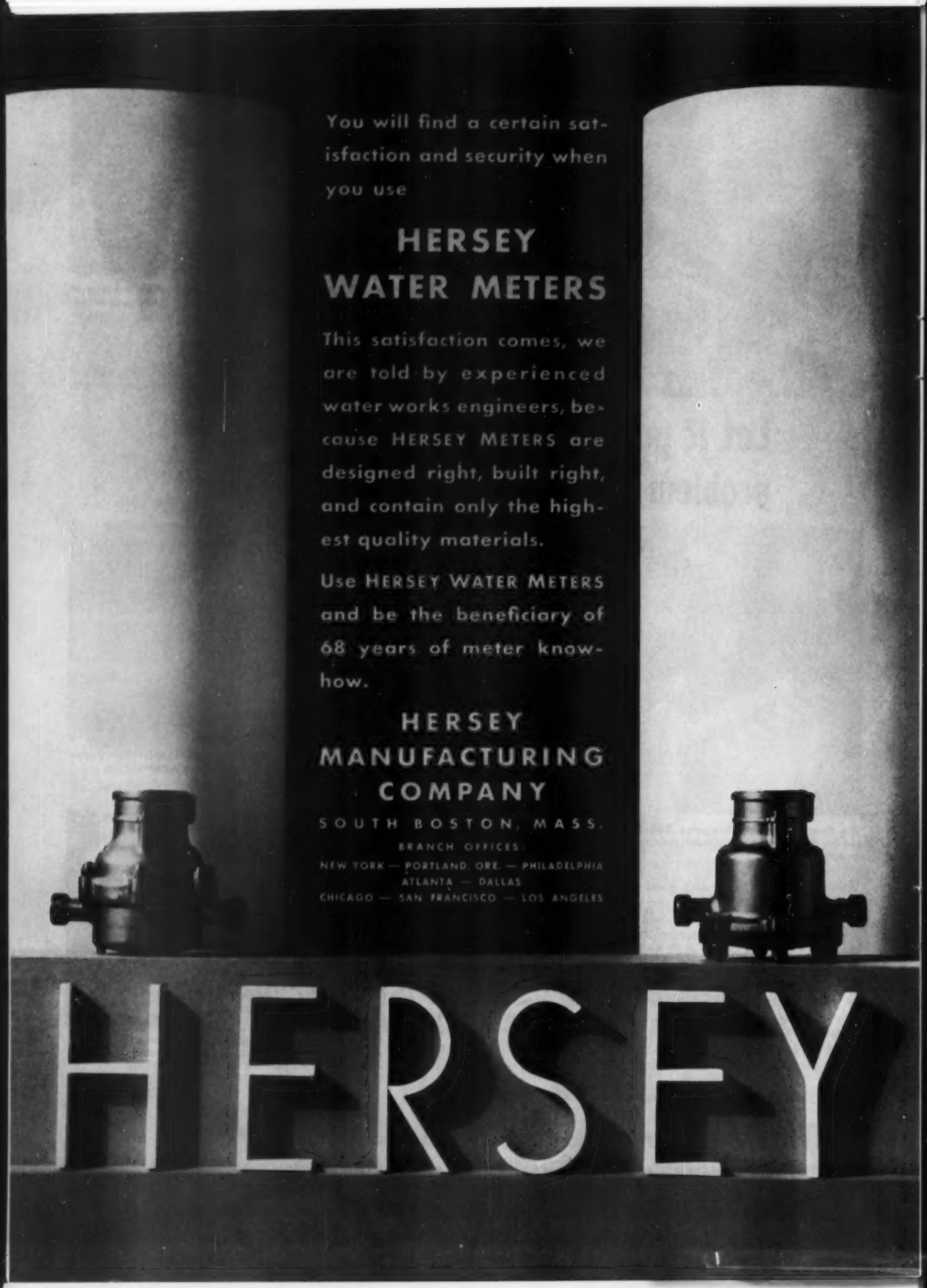
Boston • Chicago • Denver • Jacksonville • Kansas City • Los Angeles • Minneapolis • New Orleans • New York • San Diego • Seattle • St. Louis • Washington, D.C.


You will find a certain satisfaction and security when you use
HERSEY
WATER METERS
This satisfaction comes, we are told by experienced water works engineers, because HERSEY METERS are designed right, built right, and contain only the highest quality materials.
Use HERSEY WATER METERS and be the beneficiary of 68 years of meter know-how.
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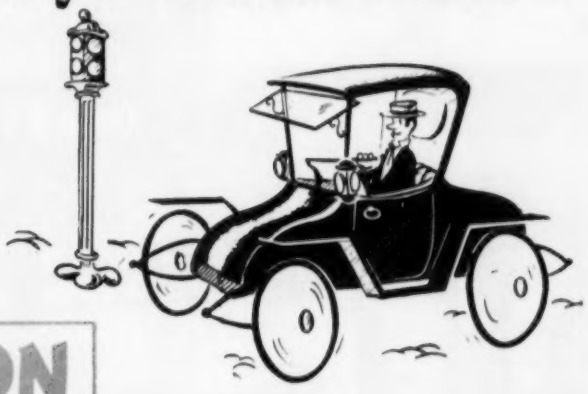
Don't Install Yesterday's Traffic Control

THE NEW **EAGLE** 'EF20' TRAFFIC CONTROLLER INSURES MODERN



AUTO-MOTION

MEETS ALL GROWING TRAFFIC NEEDS .... in the field

COMPARE . . . part for part with any other controller . . . JUDGE for yourself

MORE VERSATILE

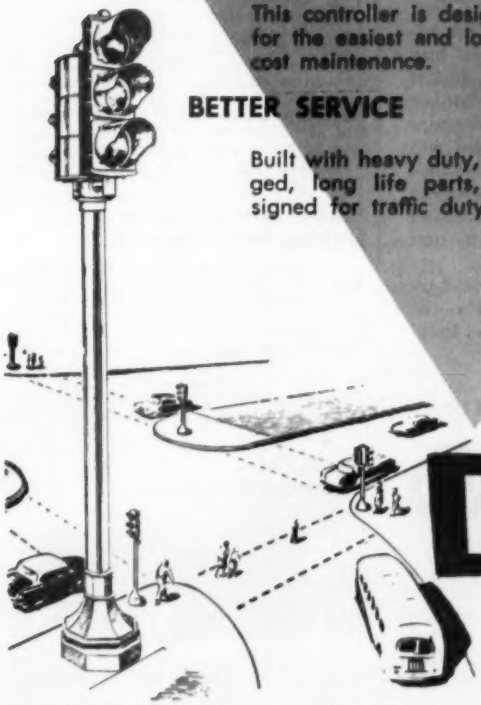
The EF 20 is readily expansible . . . you can add new features on the job.

LOWER MAINTENANCE

This controller is designed for the easiest and lowest cost maintenance.

BETTER SERVICE

Built with heavy duty, rugged, long life parts, designed for traffic duty.



Eagle "Auto-motion" is the answer to your present and future traffic problems. Eagle leads the way with complete flexibility. Lower and easier maintenance plus Eagle's modern design with the future in mind, insures lower cost traffic control. Ask today for a demonstration of the newest of traffic control.

EAGLE SIGNAL CORPORATION *Moline, Illinois*

EAGLE EQUIPMENT SAVES LIVES — SAVES TIME

POWERS *American*®

To enforce this...

you need CYCLONE FENCE!

• EVERY progressive municipality recognizes the need for large, well-equipped public playgrounds. And every civic board responsible for the erection and maintenance of these recreation areas realizes that good, adequate fencing—like USS Cyclone Fence—should be a part of the original plans for the project.

Neat, good-looking Cyclone Fence is strong and sturdy enough to keep children safe *inside* the playground away from the dangers of traffic and vagrants. At the same time it also keeps vandals and unwanted "players" *outside*, protects valuable equipment from theft and damage when the playground is closed.

If you have a municipal fencing project of any kind, get in touch with your nearest Cyclone Sales Office. They'll be glad to give you free advice. And remember: You can buy *cheaper* fence than Cyclone, but it will *cost you more per year*. Nothing but brand-new, top-quality material is used throughout. Post and top rails are heavy and rigid. Gates won't drag. The chain link fabric is woven from heavy steel wire and galvanized *after* weaving for resistance to rust and corrosion.

And Cyclone Fence is erected by full-time, well-trained experts — so that it will stay trim and good-looking for many years to come.

NO JOB IS TOO LARGE—NO JOB IS TOO SMALL FOR CYCLONE*

CYCLONE FENCE DEPT., AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION
WAUKEGAN, ILLINOIS • SALES OFFICES COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

*Cyclone is the trade-mark name of fence made only by Cyclone. Accept no substitute.

USS CYCLONE FENCE

UNITED STATES STEEL

Catalogs for You

Write directly to the manufacturers or use coupon on page 33

New Tractor-Mounted Excavator Crane

121 Mounted on a Caterpillar D6, D7 or D8 track-type tractor with dozer blade, the Hystaway excavator crane is easily converted to either shovel, backhoe, dragline, crane, clamshell or pile driver, and may be used for pipeline trenching, sewer work, loading logs, channel dredging and erecting poles. The versatile unit is made by the HYSTER CO., 2902 N.E. CLACKAMAS, PORTLAND 8, ORE. It is described in *Form No.* 1235.

Water-Works Valves

122 Hydraulic valves for controlling water storage, supply conduit and distribution pressures, automatically, are offered by the ROSS VALVE MFG. CO. INC., 8 OAKWOOD AVE., TROY, N. Y. Designed to eliminate surge and unnecessary waste, these units include pressure-reducing valves, surge relief or back-pressure valves, and altitude valves. Also such specialties as float-valve strainers and hydraulic booster pumps for chlorine feed. Write for literature.

Street Lighting With Concrete Standards

123 City officials responsible for planning, specifying or purchasing street-lighting standards, are offered *Catalog No.* 300, a 24-page booklet describing Hy-Lite prestressed concrete lighting standards. The booklet discusses Hy-Lite designs, foundation and mounting arrangements, engineering data and specifications. It includes photos of typical Hy-Lite installations, and a description of upright standards for special lighting applications. Write the AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL.

Portable Grandstands

124 Elevated and non-elevated type portable steel grandstands for every municipal occasion are designed by the LEAVITT BLEACHER CO., 206-224 GRIGGS ST., URBANA, ILL. These stands may be equipped with steps for entrance or with sloping ramps, and feature sturdy safety railings. They are constructed to permit quick additions in length or height, and are easily moved by unbolting only part of the woodwork from the steel and then unbolting the side diagonal braces. Write for literature.

Locates Buried Valves Quickly and Accurately

125 There is less needle spinning action in the new Aqua valve box locator than in previous models, assuring "pinpoint accuracy" in locating underground valves. The unit features "electric braking" action and top-view reading, and is compact and convenient to carry. It is made by the AQUA SURVEY AND INSTRUMENT CO., 2518 LESLIE AVE., CINCINNATI 12, OHIO. Write for literature.

Small Plant, Thorough Treatment

126 The little city can provide extremely thorough purification to sewage and other liquid wastes at an attractively economical cost if it uses Hays Submerged Contact Aeration. This dependable process for simple sewage treatment is explained in literature from the HAYS PROCESS CO., P. O. Box 768, WACO, TEXAS.

(See p. 51 for more Bulletins)

POWERS *American*®

presents the

"Sky-Master"

HYDRAULIC AERIAL BEAM

THE ULTIMATE IN AERIAL EQUIPMENT

IN TWO SIZES... FOR ALL TYPES OF OVERHEAD WORK

SKY-MASTER carries two men . . . in reinforced plastic work baskets . . . to *any* point within its wide range of movement. The supporting mast, which rotates on roller bearings, can be revolved continuously . . . in either direction. The hydraulically-actuated inner beam can be moved to any point in an 85° arc, and the outer beam—actuated in combination with drive pulleys and ¾" wire rope—can be spotted in any position within a 265° arc. Movement of the beams and mast is controlled by three independent levers beside the work baskets. Hydraulic outriggers, on each side of the body, furnish absolute stability regardless of SKY-MASTER'S position. Insulation against 50,000 volts is provided by an abrasion-resistant covering on the outer beam.

Operating features and construction details are described in Powers-American Bulletin No. 410. A copy, with price information, will be sent on request.

SKY-MASTER can be installed on a Powers-American Body which fits individual work requirements. SERIES AB-37 has a ground-to-basket floor height of 37', SERIES AB-43 extends to 43', enabling two men to work 48' above ground.

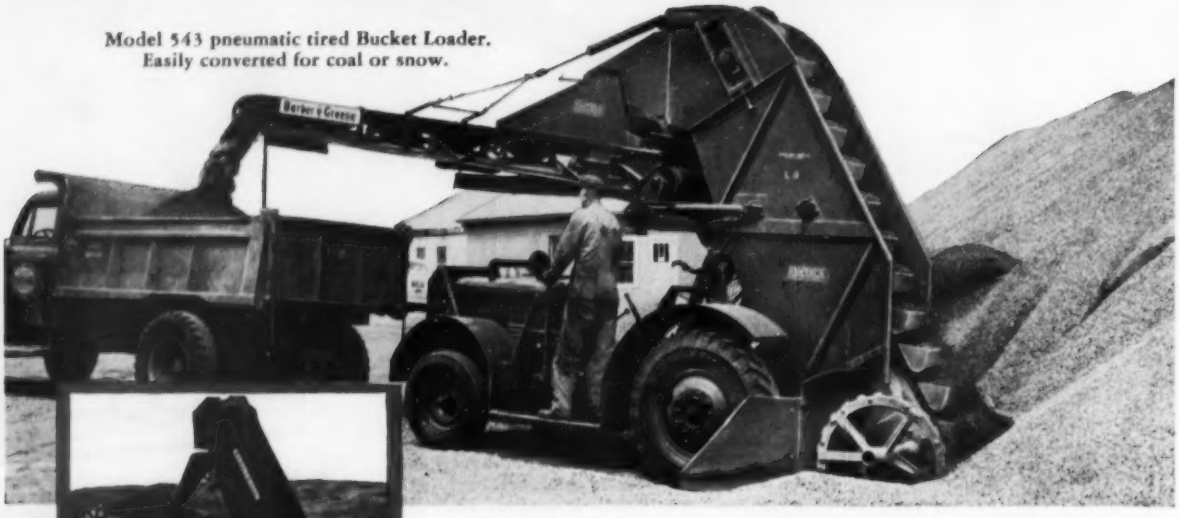
POWERS-AMERICAN DIVISION

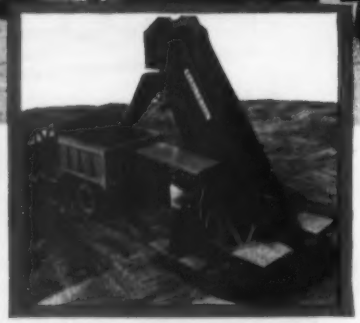
McCABE-POWERS AUTO BODY COMPANY

5900 NO. BROADWAY • ST. LOUIS 15, MO. — 625 CEDAR STREET • BERKELEY 10, CALIF.

LOAD

Model 543 pneumatic tired Bucket Loader. Easily converted for coal or snow.





Model 82-A crawler mounted Bucket Loader. Hydraulically controlled trimmer-conveyor optional.

LOAD the cheapest way.

LOAD from stock pile, bank, or windrow.

LOAD and screen in one operation.

LOAD and strip topsoil in one operation.

LOAD with the most advanced engineering developments in the loading field.

Let us show you how a Barber-Greene Loader can reduce your costs.

54-34-8L

Barber-Greene

AURORA, ILLINOIS, U.S.A.

BG

WRITE for INFORMATION

descriptive literature . . . sound movies

cost studies . . . nearby job inspection . . . plant layouts

McCABE-POWERS AUTO BODY COMPANY
5900 NO. BROADWAY • ST. LOUIS 15, MO. — 625 CEDAR STREET • BERKELEY 10, CALIF.

Catalogs for You

Write directly to the manufacturers or use coupon on page 33

One Tractor Powers Three Mowing Tools

127 Whether municipal parks and lawns require the services of a sickle mower, a rotary mower or a reel mower, you can use any of them conveniently with a Gravely tractor. The economical power unit offers a choice of 21 different maintenance tools, including three mowers and three snow removal units. It is made by GRAVELY TRACTORS, INC., BOX 73, DUNBAR, W. VA. A new catalog, *Power vs. Drudgery*, will be furnished on request.

Cleans Sewers Quickly

128 A fast, easy way to clean sewers, waste and process lines from 4 to 16 inches in diameter and up to 500 feet long, is to use the new gas engine drive Electric Eel. One man operating the Eel can clean out roots, stones and debris in one speedy operation without digging. A dual cable on the machine is self-feeding, eliminating helixing and loss of cable in the line. For detailed information, write the OHIO TOOL and ENGINEERING CO., 512 N. SPRING ST., SPRINGFIELD, OHIO.

Grab Bucket Cranes

129 Engineered for the hardest of all crane work, the grab bucket crane is called upon to work continuously, at full load—over long periods of time. How to select the proper type grab bucket crane for a specific service, is explained in *Bulletin* C9-3. Included are descriptions, illustrations, and clearance dimensions on all P & H grab bucket cranes, plus a complete spread of pictures showing modern incinerator cranes. Write the HARNISCHFEGER CORP., 4614 W. NATIONAL AVE., MILWAUKEE 46, WIS.

Remote Control of Mobile Radios

130 Two-way mobile radio systems can be remotely controlled by a desk unit that permits the operator to install a base station on a hilltop or roof, and control transmission and reception from his desk. It connects to the base station equipment by telephone and permits operation over a distance of 15-20 miles. For complete information, write the MOBILE COMMUNICATIONS DEPT., ALLEN B. DU MONT LABORATORIES, INC., 1500 MAIN AVE, CLIFTON, N. J.

Dependable Fire Alarm Equipment

131 SAFA, formerly known as Superior American Fire Alarm, offers a complete line of quality equipment, including alarm boxes, central station equipment, control panels, battery systems, transmitting and recording machines, and public alarm systems. All are described in *Bulletin* 101, available from the SAFA ALARM DIV., THE FYR-FYTER CO., 243 W. MARKET ST., ORRVILLE, OHIO.

Let Turnstiles Do It

132 Two of the principal municipal uses of turnstiles are at the entrances and exits of sports fields and stadiums and from pool to lockers at public swimming pools. How they are used to control crowds and make them pay, save manhours and stop pilfering, is explained in several free booklets available from the PEREY TURNSTILE CO., 101 PARK AVE., NEW YORK 17, N. Y.

(See p. 54 for more Bulletins)

ONE GRAVELY TRACTOR
Powers 3 Mowing Tools!

Cut mowing costs—make only ONE investment in the power unit for ground maintenance tools. 5-HP Gravely gives you your choice—from 21 different tools—including three mowers!

REEL MOWER for fine lawns, quickly converted to 72" Gang Mower by attaching Gang Units. Add Sulky, cover more ground faster with less fatigue. ROTARY MOWER for lawn and weed cutting . . . with optional LEAF MULCHER assembly. SICKLE MOWER for tough weed and brush cutting jobs!

And remember, with Gravely, you have *twice* the power of the usual power mower!

PLUS 3 SNOW REMOVAL TOOLS

Snowblower, Snowplow, and Power Brush attachments make snow removal fast and easy . . . you change from job to job by removing and replacing only four bolts . . . suit the tool to the job or season in minutes!

PROOF... BY FREE DEMONSTRATION!

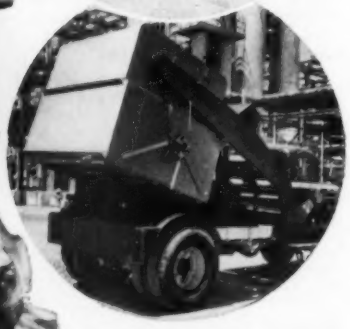
Yes, cut costs . . . and we will prove how you can . . . how you get more for your money when you get Gravely! A FREE demonstration is yours on request . . . *at no obligation.* Or write for "Power Vs. Drudgery" catalog, FREE!

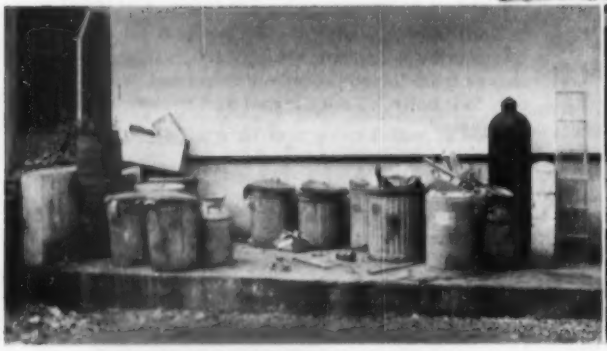
Ask About New Gravely Starter

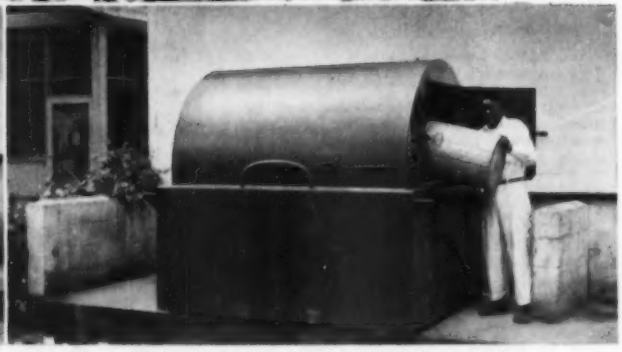
GRAVELY TRACTORS, INC.
BOX 73 DUNBAR, W. VA.

Here is the immediate solution refuse

The Dempster-Dumpster is operated by only one man, the driver, by means of hydraulic controls in cab. It picks up a loaded container, hauls to disposal area, empties (see photos here) and then returns it . . . serving one container after another.







This Lexington, Ky. groceryman had gone to the added expense of building a concrete platform to keep cans and crates full of garbage off the ground. He had done all he could within reason to make the best and most sanitary condition possible with conventional cans. Yet, look at the difference after the 10 cu. yd. Apartment Type Container replaced all the inadequate cans, crates, barrels, etc.

to the FOUR major bulk collection problems in any city!

1. UNSANITARY CONDITIONS: Health and Sanitation Departments are well aware of the disease spreading potential of unprotected rat and fly infested refuse.

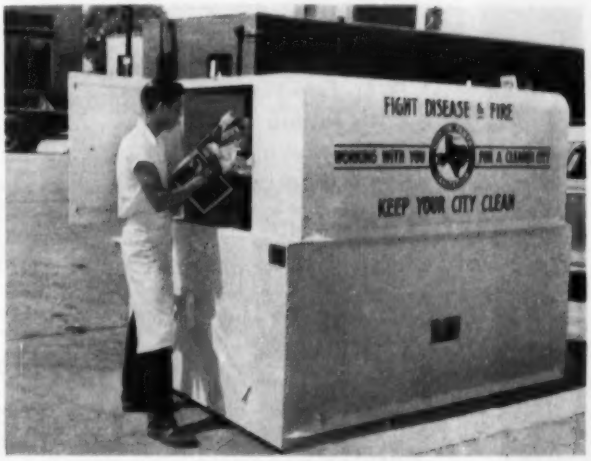
2. UNSIGHTLY CONDITIONS: Every citizen is conscious of the conditions caused by wind and scavengers scattering trash and refuse over alleys and streets.

3. FIRE HAZARDS: Fire Departments know too well the extent to which property is damaged and gutted by fires resulting from unprotected accumulations of trash, rubbish, inadequate trash cans, boxes, etc.

4. HANDLING COSTS: The cost of crews in the slow process of re-handling and loading trash and refuse is tremendous. Conventional trucks standing idle, waiting to be loaded, is a costly waste of equipment time.

All four of these bulk refuse collection problems can be quickly and completely solved by the Dempster-Dumpster System. Problems one, two and three are solved by the big steel Dempster-Dumpster Containers. These containers have self-latching doors and lids, keeping refuse out-of-sight between deposits by users. No rats or flies can contaminate the refuse. Winds and scavengers cannot scatter it. Fire hazards are eliminated. The fourth problem, rehandling costs, is solved by one truck-mounted Dempster-Dumpster and the driver serving numerous containers one after another.

Actual reductions in collection costs have ranged from 50 per cent up in cities where the Dempster-Dumpster has been installed. Without question, this system is recognized as the most sanitary and lowest cost method of bulk refuse collection ever devised. When, with this system, you can be assured of amazing cost reductions in service, with Sanitation, Citizen approval and Fire Prevention thrown in, it is worthy of investigation. Ask us to forward further information. Manufactured exclusively by Dempster Brothers, Inc.



The scene above was photographed in Pampa, Texas after the Dempster-Dumpster System was installed last year. One Dempster-Dumpster serves 33 detachable containers, ranging in capacity from 8 to 12 cu. yds. This equipment will be completely amortized by the city by savings in about four years.

The two photos at left show what happens when the Dempster-Dumpster Detachable Containers replace conventional cans in a typical housing area. Without the trash and garbage cans this area is an ideal place for children to play. Note that one 6 cu. yd. Apartment Type Container replaced some 14 conventional cans. Instead of a conventional truck with crew rehandling the refuse from cans to truck, a Dempster-Dumpster with only one man, the driver, will serve the loaded containers. There is no rehandling of refuse whatsoever.

THE DEMPSTER DUMPSTER SYSTEM

DEMPSTER BROTHERS

845 Dempster Bldg. Knoxville 17, Tenn.

RAINS MAGNIFY TURBIDITY PROBLEMS

Ferric salts have proven their ability to coagulate waters of widely varying turbidity. Spring rains increase turbidity for those who must treat surface supplies. The use of Ferri-Floc will simplify the treatment of this high turbidity. Ferri-Floc is partially hydrated Ferric Sulphate that has the ability to convert these high turbidities without radical dosage changes.

TENNESSEE CORPORATION Ferri-Floc FERRIC SULPHATE

Performance is Proof—

A large filtration plant Superintendent has this to say:

For coagulation of high turbidity with a high PH we have found Ferric Sulphate to be superior in all cases and we would not hesitate to recommend it.

Drop us a card for your copy of this booklet that contains valuable information for you.

TENNESSEE CORPORATION

617-29 Grant Building, Atlanta, Georgia

More Literature

Write directly to the manufacturers or use coupon on page 33

Paints for Water Works

133 The results of a detailed survey of water-treatment plant painting practices and problems have been incorporated into a new 15-page report featuring 13 approved systems of maintenance painting. Each system applies to a specific type of surface or equipment found in water-treatment plants. Recommendations are offered for maximum surface protection where fumes, high humidity and water can cause paint failures. Copies of the new report are available from the TROPICAL PAINT CO., CLEVELAND 2, OHIO.

Street-Lighting Brackets and Mast Arms

134 Engineered for easy installation and wiring, these sturdy brackets and mast arms meet all I.E.S. street-lighting recommendations. The economical units are available for either wood or steel pole mounting. They are described in a new catalog from KERRIGAN IRON WORKS, INC., NASHVILLE, TENN.

New "Handy Horse" Aids Maintenance Crews

135 Equip the maintenance crews in your community with the Handy Horse "500," a sturdy metal horse that folds compactly for easy handling and storing. This light-weight unit is available completely assembled, and may be quickly carried from job-to-job. Designed to hold heavy weights, it won't wobble, wiggle or warp under loads. For full information, write the FEDERAL AIRCRAFT WORKS, 3456 N. WASHINGTON AVE., MINNEAPOLIS 12, MINN.

Cleans Water Mains and Sewage-Force Lines

136 The Flex-O Pipeline Scraper is extremely simple to operate and will allow you to clean your city's water mains and sewage-force lines at your convenience, using your own crew. The scrapers are designed for mains from 4 to 48 inches, and feature interchangeable scraper arms and pusher braces. They are easily operated on ordinary city pressure without rods or pulling devices. Write THE CARVER-STIMPSON PIPE-CLEANING CO., WALTERS, OKLA.

Small Roller Expedites Street Construction

137 A small, self-propelled roller for easy handling in close quarters covers a path 72 inches wide quickly and efficiently. The machine features hydraulic power steering, a short wheel base for high maneuverability, and constant rolling speeds, forward and reverse. All parts are easily accessible, and the entire unit requires minimum maintenance. For complete information, write the TAMPO MFG. CO., 1146 W. LAUREL ST., SAN ANTONIO, TEXAS.

New Acid-Proof Cement

138 Used as a jointing material for acid-proof brick, tile and vitrified pipelines in sewage-disposal systems and sewers, chemical plants and laboratories, Staminite cement sets chemically becoming both acid-proof and waterproof. The new cement hardens without air. It resists all ordinary acids, either hot or cold, without acid washes. A full description of Staminite acid-proof cement along with instructions for applying it, is contained in literature from THE ROBINSON CLAY PRODUCT CO., 65 W. STATE ST., AKRON 9, OHIO.

AQUA-ZYME
A BIO-CATALYST

ENZYMES TODAY WITH TREASURED

...it's

Senergistic!

Insures Modern Sewage Stabilization!

ODOR CONTROL . . . *Senergistic* **AQUA-ZYME** is an organic catalyst which includes a system of enzymes and other important factors that effectively deodorizes the processing of domestic and industrial wastes.

PERCOLATION . . . *Senergistic* **AQUA-ZYME** precipitates and hydrolyzes organic solids and normalizes the soil texture below and around oxidation, percolation and sludge beds. Percolation and sludge dewatering are promoted and maintained.

SAFE . . . AQUA-ZYME is *non-poisonous* and *non-injurious* to installation and personnel.

ECONOMICAL . . . AQUA-ZYME is a catalyst capable of energizing a chain reaction of beneficial living organisms with *small* applications of a product that is already below average in price. Large or small treaters of waste material *can no longer* afford to be without the benefits of *Senergistic* **AQUA-ZYME**.

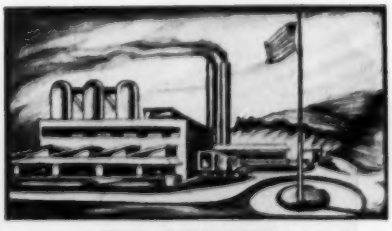
AQUA-ZYME is *guaranteed!*

YOUR CITY . . . YOUR COMMUNITY . . . are entitled to the benefits of *Senergistic* AQUA-ZYME.

To get complete information contact your local AQUA-ZYME representative, or write HOOVER SOIL SERVICE, Gilman, Illinois.

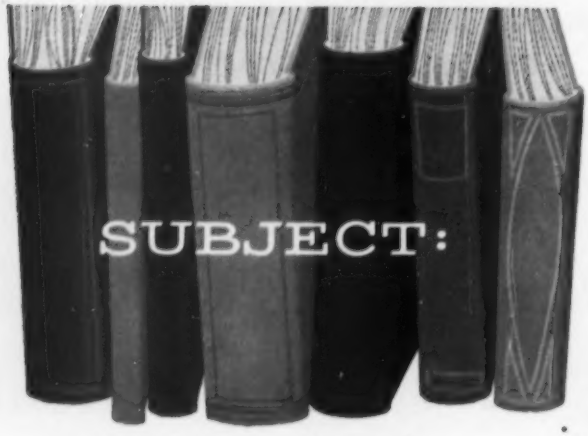
FOR BETTER SEWAGE CONTROL

FOR MUNICIPALITY



FOR INDUSTRY

HOOVER SOIL SERVICE
GILMAN • ILLINOIS



Budgetary control -

how to simplify and make more effective.

HERE'S THE BOOK YOU START WITH:

Your telephone directory will put you in contact with our representative in your community. Let him show you how the Burroughs Budgetary Accounting Machine makes possible simple form design . . . forms that are more compact, neat, and logically arranged.

He'll show you mechanized advantages, too, such as the "repeat" feature that reduces indexing work, and the positive form alignment of the Burroughs Budgetary Accounting Machine. You'll be impressed with the posting speed and simplicity of operation obtainable with this combination of right form and right machine for perfect budget control. Burroughs Budgetary Accounting Machine mechanically prevents posting errors caused by the operator's picking up previous balances incorrectly.

FREE: "STREAMLINED GOVERNMENTAL ACCOUNTING AND MANAGEMENT REPORTS."

Our special booklet on streamlining accounting and management reports is packed with helpful information on how the Burroughs Budgetary Accounting Machine simplifies budget ledger preparation and other accounting operations. Phone our local representative and ask for your copy, or write Burroughs Corporation, Detroit 32, Michigan.

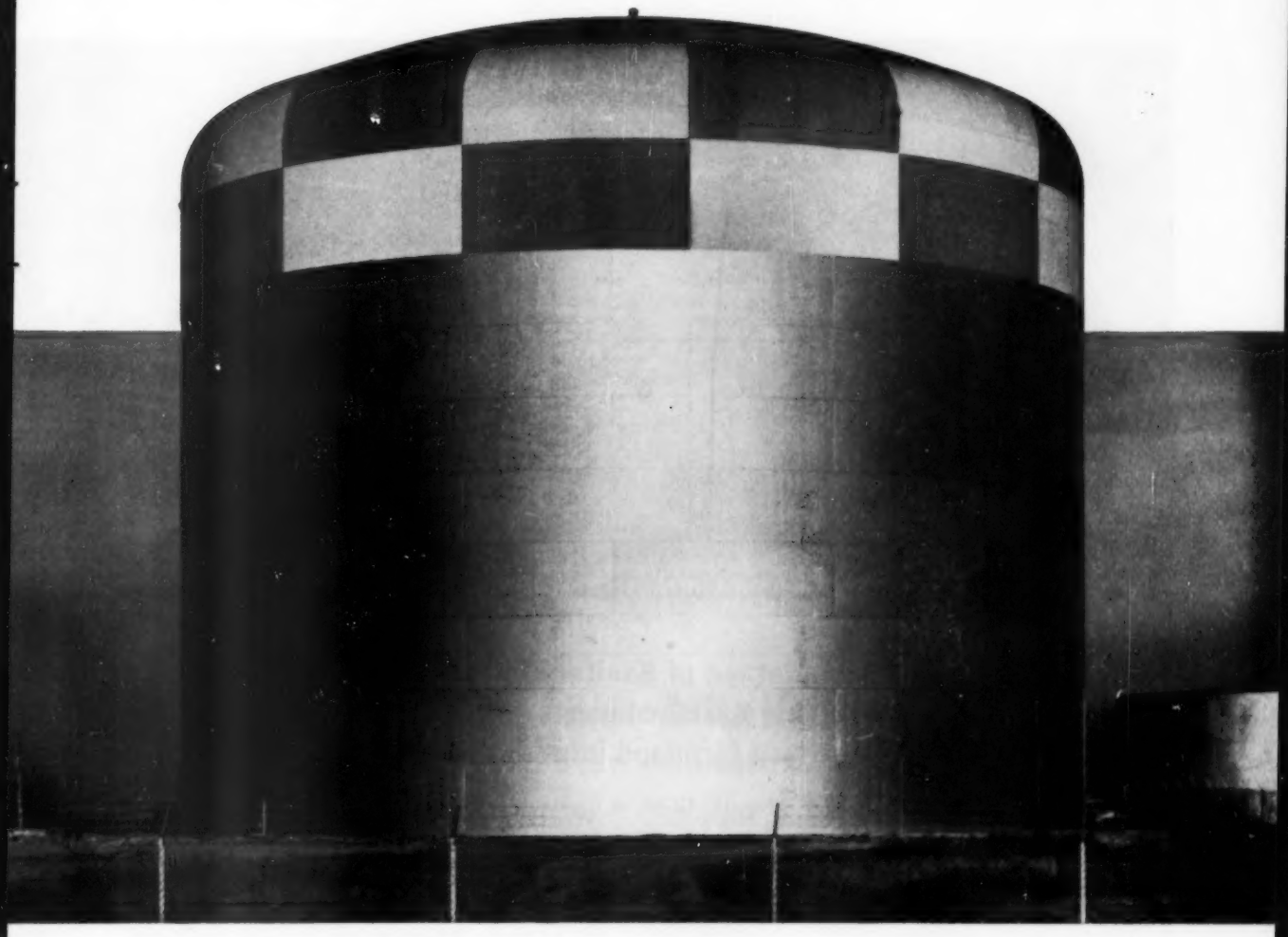
WHEREVER THERE'S BUSINESS THERE'S Burroughs

Burroughs is a trade-mark.

America's Largest Standpipe

(CAPACITY 7,268,000 GALLONS)

for South Pittsburgh Water Company



by PITTSBURGH •DES MOINES

This huge water storage unit evidences typical Pittsburgh-Des Moines fine workmanship in shop fabrication and field erection. Measuring 116 feet in diameter, with a water depth of 95 feet and total capacity of 7,268,000 gallons, the South Pittsburgh Water Company giant is the largest standpipe-type storage tank built in America to date. • Let us quote on your water storage needs.

PITTSBURGH-DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25)	3414 Neville Island	DES MOINES (8)	915 Tuttle Street
NEWARK (2)	216 Industrial Office Bldg.	DALLAS (1)	1219 Praetorian Building
CHICAGO (3)	1218 First National Bank Bldg.	SEATTLE	522 Lane Street
LOS ANGELES (48)	6399 Wilshire Blvd.	SANTA CLARA, CAL	621 Alviso Road

How Knox County Practices

225 CUBIC YARDS OF REFUSE pours into the disposal site daily from private collectors. There it is picked up by a TD-14A INTERNATIONAL DROTT Bullclam and moved to the gullied area on the farm.

COMPACTING THE RUBBLE is an operation that only requires minutes as the curve on the closed Bullclam blade crushes and irons the refuse into a dense mass.

Bullclam Method of Sanitary Fill operates on self-supporting basis, converts worthless, eroded Tennessee farmland into lush pastures

The Knox County Health Department, Knoxville, Tennessee, uses refuse from an estimated 110,000 population to reclaim eroded farmland near that city.

County officials adopted the Bullclam Method of Sanitary Fill back in 1951. A TD-14A INTERNATIONAL DROTT Bullclam was put to work burying 225 cubic yards of refuse daily, in gullied areas on farms in the southwest section of the county.

Results to date: Five acres of worthless, eroded farmland reclaimed and converted to lush pasture, reclamation work presently under way on gullied section of second farm.

From the outset, the operation has been self-supporting, since a 25-cent monthly fee is collected by the county from each customer serviced by the private collectors.

Whether your community is interested in reclaiming farmland, building playgrounds or industrial sites on marshy areas, or simply in disposing of waste materials safely and for lowest cost, an INTERNATIONAL DROTT Bullclam does the job best. A demonstration by your INTERNATIONAL Industrial Power Distributor will provide proof. Call him today.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS
DROTT MANUFACTURING CORP., MILWAUKEE 8, WISCONSIN

INTERNATIONAL HARVESTER

INTERNATIONAL® DROTT

Reclamation with Refuse

COVERING THE WASTE is accomplished by application of a two-foot earth seal. Only dirt required for cover coat is excavated and moved swiftly to the fill where it is spread evenly to safeguard against rodents and insects breeding here.

"EASIER TO WORK THAN A KNIFE AND FORK"

Amazing New INTERNATIONAL DROTT 4-in-1 Skid-Shovel Converts Into a

● BULLDOZER ● BULLCLAM ● SKID-SHOVEL ● CLAMSHELL

With the convenient hydraulic control lever, the operator can select the digging tool to suit any type of earthmoving job . . . instantly, while the tractor is in motion or standing still.

Never before has one machine been able to do so many municipal jobs so well and for as little cost as the new INTERNATIONAL DROTT 4-in-1 Skid-Shovel.

Roy Lewis, a superintendent for the McKenzie Construction Company, has been giving the amazing new TD-6 INTERNATIONAL DROTT 4-in-1 Skid-Shovel "the works" for the past several months on a Dallas sewer job and he makes this report:

"It's easier to work than a knife and fork. We've dozed, dragged, hauled, loaded and scraped with it. Even put teeth on the bucket and ripped into hard rock 30 days without breaking a tooth. It's so efficient, I believe it could unbutton your shirt."

See it in action by calling your INTERNATIONAL Industrial Power Distributor. He'll show you how it can be used as a Bullclam for a Sanitary Fill project—and on scores of other jobs your community needs done for lowest cost. The hydraulic "shovel selector" converts it into a Bulldozer, Skid-Shovel, Bullclam or Clamshell . . . right from the operator's seat.

SOMETHING SPECIAL. New INTERNATIONAL DROTT 4-in-1 Skid-Shovel performance on city sewer job prompted superintendent to remark, *"It's far ahead of the times."* Can also be used efficiently on sanitary fill operations.

"Big Machine" Features

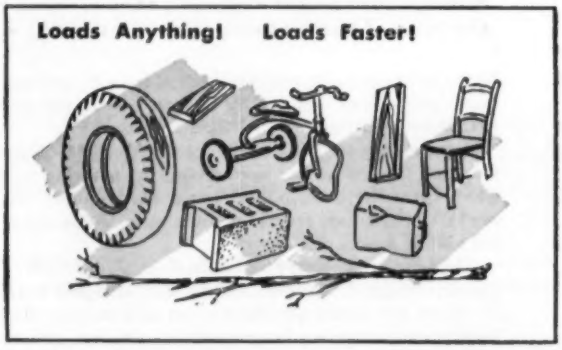
Spring clean-up time is LOAD-PACKER time!

Everywhere across the nation, city officials are finding that taxpayers cooperate more readily in sanitation programs when the collection job is handled by modern, fully-enclosed Gar Wood Load-Packers. This is because Load-Packers collect *both* garbage and trash, in less time, with less muss and fuss — and at much lower cost to the community.

Double compaction of both ram and retaining panel, plus positive retention of compacted materials, enable Load-Packers to carry extra payloads every trip. This means you need fewer units, fewer men, fewer trips to the dump, resulting in lower net cost per year for operation and maintenance.

Leak and odor proof: Load-Packer design eliminates dripping, blowing refuse, insures a more healthful community . . . eliminates complaints from taxpayers.

A free demonstration will quickly show you why the Load-Packer method is *preferred 4 to 1* over all other types of collection systems combined. Write today. Gar Wood Industries, Inc., Wayne, Mich., Richmond, Calif.



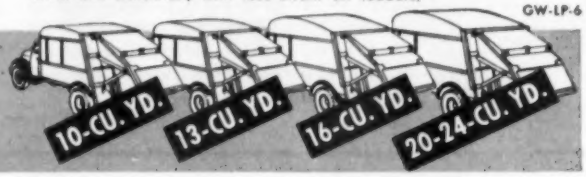
Powerful Load-Packer loads and compacts anything that fits into the large hopper. No need for selective loading. In addition, Gar Wood's extra-wide hopper, low height and fast loading cycle, permit faster, lower-cost collection, with less strain on loaders.

GW-LP-6

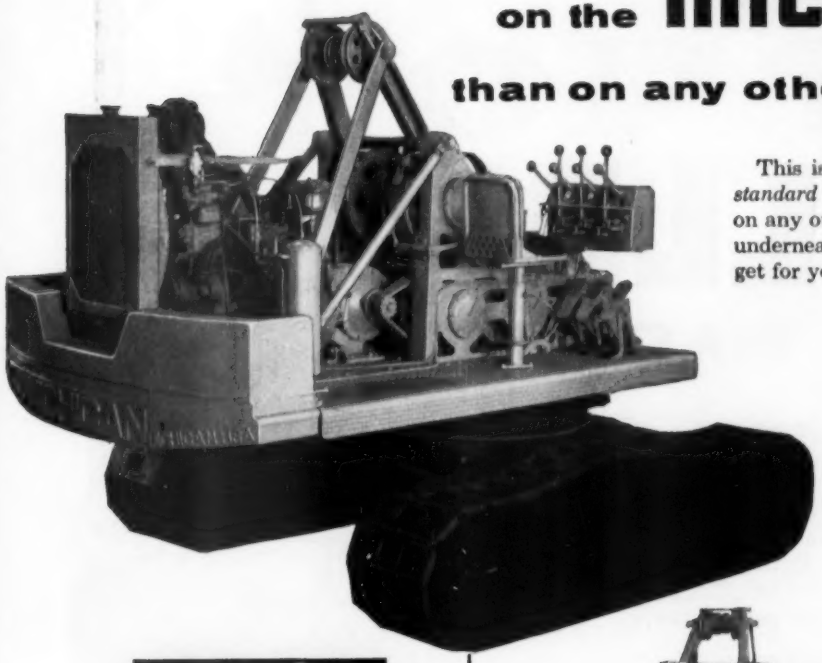
GAR WOOD GW INDUSTRIES

LOAD-PACKER

America's Most Popular Refuse Collection-Unit



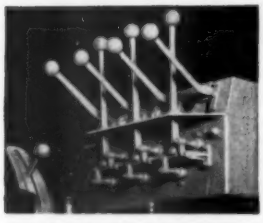
More "Big Machine" Features on the MICHIGAN C-16 than on any other ½-yard crawler!



This is a fact: more "big machine" features are *standard equipment* on the MICHIGAN C-16 than on any other ½-yard crawler. It will pay you to look underneath — look inside to see how much more you get for your money.

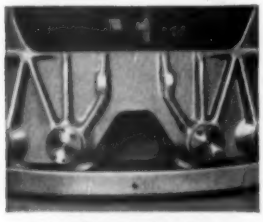
This machine is built for quality-conscious users—for bigger yardage, bigger tonnage, and substantially lower maintenance. The C-16 invites a feature-by-feature comparison with other same-capacity machines.

Write for detailed literature on this ½-yard crawler with big machine features and durability. Or contact your local MICHIGAN distributor. Like all MICHIGAN machines, the C-16 is available on a low-cost Lease Plan—details available.



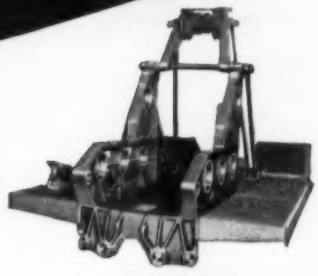
Power Control Independent Travel

Air Controls are standard on all MICHIGANs . . . fast, smooth, precise, with low operator fatigue. Independent Travel is also standard . . . move up while hoisting, swinging, or dumping.



Six Hook Rollers

You can swing the boom just by leaning against it. There are 6 ball bearing-mounted adjustable hook rollers on the C-16 . . . grease twice a year. Most other ½-yd machines have only 3 or 4 rollers, bushing-mounted.

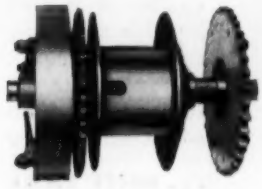


Cast Steel Deck

This feature is usually found only on 1-yd or larger machines. C-16 deck is one-piece, alloy steel casting . . . side frames, boom foot lugs and roller brackets are cast integral. No misalignment!

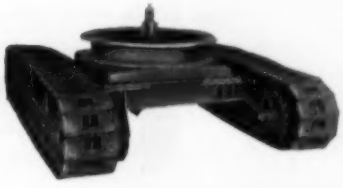
Smooth Clutches

There's nothing smoother than MICHIGAN air-operated segmented disc clutches . . . and they are self-compensating for heat, self-ventilating and self-cleaning. All segments are interchangeable.



Power Load-Lowering

Four shafts on the C-16: Swing, Hoist, Travel and Crowd . . . each with its independent clutches. For precision crane work, the hoist line can be reeved on the front drum to provide Power-Up and Power-Down.



Cast Steel Car-Body

Circle gear, with hook roller paths, internal gear teeth, center post, and crawler drive gear case is cast integral. Standard alloy steel tracks are 20″ wide, 9′10″ long. Swamp pads are optional: 30″ wide, 11′10″ long.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY, 416 Second Street, Benton Harbor, Michigan. (29A)

Construction Machinery Division
Phone: WA 6-6184

Please send literature:

☐ C-16 Detailed Bulletin

☐ MICHIGAN Lease Plan Bulletin

Name_____

Firm_____

Address_____

City_____ Zone____ State_____

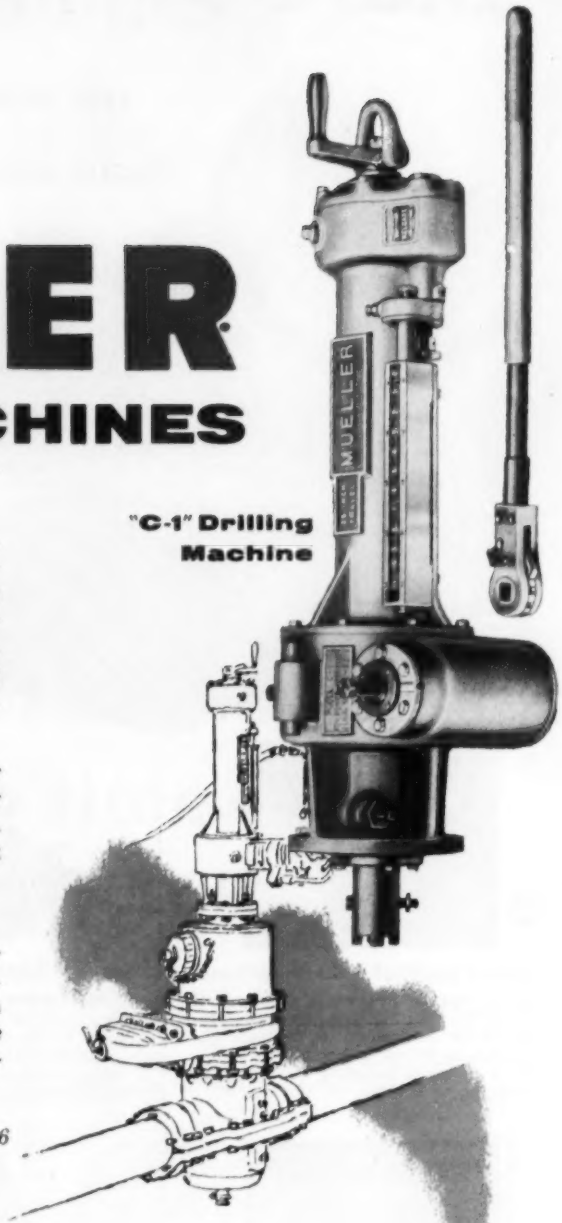
MUELLER
DRILLING MACHINES

...have broad application
Install control valves... connect branch mains... perform a wide variety of other water works operations...under pressure...makes cuts 2" through 12" in any type pipe...25" boring bar travel...working pressures to 500 p.s.i...working temperatures to 550° F... used with Mueller Inserting Valves, Tapping Sleeves and Valves, Gate Valves and special fittings.

...are easier to operate
Positive automatic feed for drilling... hand feed for rapid advance and withdrawal... hand or power operated... air or gasoline engine power units... feed indicator standard equipment... stuffing box adjustment during cutting.

...will last longer
All working parts completely enclosed in tight, oil-filled case... perfect lubrication... free from dirt... telescopic construction for compactness, strength and rigidity... special design prevents line pressure from entering gear case... ball thrust bearings reduce friction and wear... Fully Warranted.

Consult your Mueller Representative, your Mueller W-96 Water Works Catalog or write direct for full details.



"C-1" Drilling Machine

MUELLER CO.
Dependable Since 1857
MAIN OFFICE & FACTORY DECATUR, ILLINOIS

"CC" Drilling Machine

☐ MICHIGAN Lease Plan Bulletin City Zone State

get set for more work with lower equipment investment

HOPTO

DIGGER • SHOVEL • CRANE

FAST CYCLING . . . HYDRAULICALLY OPERATED . . . EASILY MASTERED!

HOPTO Model 200 DTM illustrated above mounts on any 1½ ton or larger truck. This low-cost, big-capacity, versatile unit gives you a power shovel, crane and backhoe at *low equipment investment!*
HOPTO is completely hydraulic. Four levers give fatigue-free operation of this fast-cycling, 200° swing unit. The dipper stick extension mounting on the bucket gives 135° tilt. HOPTO digs 11½ feet below surface; lifts 13½ feet high with shovel bucket, more than 9 feet high with backhoe.
Alloyed steel hardened pins and self-aligning bearings at all pivot points, magnetically filtered oil, double wire braided hydraulic hoses and the elimination of all cables, sheaves and pulleys assure longer life, lower maintenance!

MODELS FOR EVERY NEED!

Badger manufactures a complete line of earth digging equipment from the large capacity, continuous Badger Trencher to the following models of the HOPTO Digger: Power take-off operated and self-powered trailer-type models, two models for mounting directly on any 1½ ton or larger truck, models for rear mounting on track-type of wheel-type tractors, a complete self-propelled track-type unit and the complete Model SPR unit shown below. All HOPTO units incorporate the completely hydraulic operation and the heavy-duty engineered features that make HOPTO the standard of comparison!
A wide variety of attaching equipment adapts HOPTO for any shovel or backhoe work. Half shell and skeleton type buckets and backhoes are available in a variety of widths for every application. Buckets are equipped with HL teeth.
Get all the facts and you'll get HOPTO!

BADGER MACHINE CO.

DEPT. D WINONA, MINN.

WRITE FOR FREE FOLDER GIVING COMPLETE INFORMATION

SEWERPIPER SPEED

"Fire! Bill's Super Market at 7016 West Grand."

The terse radio message called for action . . . action in a hurry . . . and the mounted officer dashed to the scene on his Harley-Davidson Solo.

He sped through alleys . . . cut through heavy traffic, took shortcuts that were completely impassable to other means of transportation.

You, too, can count on this fast, dependable answer to emergency calls, when you mount officers on Harley-Davidson Solos. Learn more about these rugged two-wheelers. Your dealer can point out many advantages, whether you use them for traffic control, patrolling or for emergencies. See him soon.

HARLEY-DAVIDSON MOTOR COMPANY
Milwaukee 1, Wis.

Get to trouble spots FAST

on a HARLEY-DAVIDSON SOLO POLICE MOTORCYCLE

To meet the stepped-up needs of industry . . .

SEWERODER SPEED
Was IMPORTANT, Here!

This "lake," and many more, caused by *Hurricane Hazel,* at Elyria, Ohio, last October, did not pose any serious problem for the Elyria sewer crew of Bob Basnet, Jim Mittler, and Howard Botamer, thanks to their "Flexible" SeweRodeR.

Many basements were saved from being flooded; the threat of a contaminated water supply was reduced to a minimum.

The crew merely moved the SeweRodeR into the "lake," and mechanically unplugged the stoppage without touching a rod or putting a hand in the water. They were through before ordinary equipment could have been set up.

Will your city be ready with a SeweRodeR in case of emergency or flood?

SEND FOR FREE CATALOG, TODAY

Flexible SALES CORPORATION
3786 DURANGO AVE., LOS ANGELES 34, CALIF.
(Distributors in Principal Cities)

AMERICA'S LARGEST LINE OF PIPE CLEANING TOOLS AND EQUIPMENT

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

PROMPT SHIPMENT

Inquiries and orders solicited.

NORTHERN GRAVEL COMPANY
Muscatine, Iowa
P.O. Box 307 Amherst 3-2711

always looking for NEW . . .

STREET SIGN BUSINESS

To acquaint you with the best Embossed Baked Enamel Street Signs, Posts and Fixtures we are offering the

LOWEST PRICES in the INDUSTRY—

WE WILL NOT BE UNDER-SOLD!

CRISS-CROSS
TYPE 38-B

Write NOW for BIG SAVINGS SEND FOR CATALOG

MUNICIPAL STREET SIGN CO., Inc.
Manufacturer of Largest Variety of Street Signs in America
777-9 Meeker Ave., Brooklyn 22, N. Y.

. . . for more power—better performance—longer life . . .

To meet the stepped-up needs of industry . . .

ALLIS-CHALMERS PRESENTS TWO

ALLIS-CHALMERS

TS-360

280 HP

15-YD CAPACITY, STRUCK

20-YD CAPACITY, HEAPED

NEW BIG-YARDAGE WORK CAPACITY!

Power that pays

The TS-360's great new Allis-Chalmers engine spearheads a whole new power train that offers more rim pull at lower speeds for better loading, hauling and spreading performance; faster acceleration, easy shifting and quick getaways. Combined with new 20-yd capacity, this all adds up to fast, high-volume, high-profit work cycles.

New operating ease and safety

In addition to big-job power and gearing, the TS-360 Motor Scraper offers everything an operator needs to work easily, yet efficiently . . . new Double-Safety air brakes, new selective steering, direct electric starting, new multiple-disc cable control . . . and many others you'll want to know more about.

Strength to back it up!

The new TS-360 is built around a new, all-welded, heavy steel main frame that makes possible the service accessibility of unit construction. What's more, there's an all-new final-drive gear train, with new gears, shafts and bearings. These and many other advantages mean more work done, lower maintenance cost and longer equipment life.

Nowhere can you match these two in the amount of work they do!

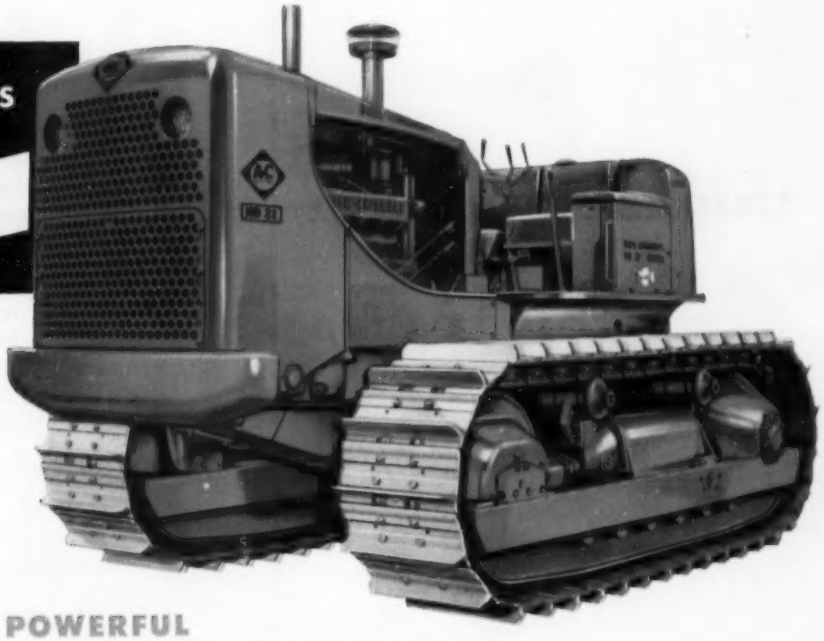
The INTERNATIONAL R-140 4 x 4 makes

... for more power—better performance—longer life ...

NEW, POWERFUL DIRT MOVERS

ALLIS-CHALMERS

HD-21



204 NET ENGINE HP

44,000 LB

BIGGEST, MOST POWERFUL CRAWLER IN PRODUCTION... ANYWHERE!

New standards of output

The HD-21 introduces the new Allis-Chalmers engine and a great new power transmission team. Together, they provide extra speed with any load, extra pulling power at any speed . . . wider speed ranges and more range overlap. And with its advanced design torque converter (*the result of 15 years of leadership by Allis-Chalmers*) the HD-21 puts its power to work with less shifting than ever before possible . . . to help you reach a new high in efficient, profitable production!

New standards of durability

From the new Allis-Chalmers diesel with "follow-through" combustion to new, heavier Tru-Dimension track, the HD-21 is built to take today's big loads in stride, and come back for more. Here are just a few more of the long-life features you can't get from anyone but Allis-Chalmers . . . at any price: all-steel Box-A main frame, straddle-mounted final-drive gears, 1,000-hour truck wheel lubrication, oil-enclosed track release mechanism.

New low cost per unit of work

The HD-21 offers 20 percent greater over-all performance . . . provides a new measure of tractor value. Add the *planned* approach to service offered by Allis-Chalmers dealers, and it's the ideal team for men tackling today's big jobs.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

FAIRBANKS-MORSE

Another truck's mountain is this truck's molehill

The INTERNATIONAL R-140 4 x 4 makes tough fire-fighting assignments look easy. This four-wheel-drive truck mounting fire apparatus is a real off-highway specialist. It takes in stride the steep hills, sandy soil, and terrain hardly negotiable by standard 4 x 2 trucks.

And it does it at rock bottom operating and maintenance costs. Like every INTERNATIONAL designed for fire-fighting, the R-140 is all truck designed and engineered, for dependability and long life. Every component is specifically designed and tested to stand up under the roughest treatment, and to stay on the job longer, to keep costs down.

Ideal for protection of rural property, the R-140 4 x 4 is the perfect partner of other INTERNATIONAL *specialized* fire truck chassis. There's one exactly suited to the needs of your community. Before you specify any fire truck units, see your INTERNATIONAL Dealer or Branch.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

INTERNATIONAL R-140 4 x 4, mounting fire equipment, is powered by famous Silver Diamond 240 engine, has power take-off openings on right and left side, a 20 gpm. 300-gal. water tank, driven by 31-hp. gasoline engine mounted on body.

International Harvester Builds **McCORMICK®** Farm Equipment and **FARMALL®** Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

See the season's new TV hit, "The Halls of Ivy," with Ronald Colman and Benita Hume, CBS-TV, Tuesdays, 8:30 p.m., EST

INTERNATIONAL® TRUCKS

"Standard of the Highway"

Mechanic and Helper* Remove Piston in Record Time

At a recent show 20,000 people tried to guess how long it would take to pull a piston on a standard production model Opposed Piston Diesel Engine.

Starting from scratch, the piston was removed and on the floor—in two minutes flat!

Why was it possible in just two minutes? There are no gasketed joints to separate—no lube or fuel oil connections to break—no water connections to break—no cylinder heads to remove. That's why, in two minutes, you can do on an O-P what it takes hours—even days—to do on comparable diesel engines.

There's more—much more—to the story of what dependable O-P Power can mean to your maintenance operations and profit. Why not get together with your nearby F-M Power Specialist and find out about the profitable difference with O-P Power? Fairbanks, Morse & Co., 600 South Michigan Ave., Chicago 5, Illinois.

*TV Actress Joan Kemp

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • RAIL CARS • ELECTRICAL MACHINERY • PUMPS • SCALES • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETO

what have

The Asiatic elephant is found in shady, wooded districts of Southeastern Asia. Huge animals that weigh up to 8,000 pounds and have a life span of about 60 years, they are easily domesticated. Many of them are used to perform useful labors of lifting and pulling. Ordinarily gentle, they become highly dangerous when enraged or frightened.

In good condition after 100 years of service, this cast iron water distribution main is one of several still functioning in New York City.

MODERNIZED cast iron

they in common...

THE ELEPHANT AND CAST IRON PIPE... STRENGTH!

Great strength has made the elephant one of Man's most useful animals. And Cast Iron's strength . . . shock strength, beam strength, compressive strength, make it the world's most dependable pipe . . . servant of centuries.

AND HERE'S THE PROOF: Listed below are some of the many water utilities still using cast iron pipe that was installed a century or more ago.

DEPARTMENT OF WATER AND WATER SUPPLY, City of Albany, New York
ALEXANDRIA WATER COMPANY, Alexandria, Virginia
BUREAU OF WATER, DEPT. OF PUBLIC WORKS, Baltimore, Maryland
PUBLIC WORKS DEPT., WATER DIVISION, Boston, Massachusetts
DEPARTMENT OF PUBLIC WORKS, DIVISION OF WATER, Buffalo, N. Y.
WATER WORKS DEPARTMENT, Chicago
COLUMBIA WATER COMPANY, Columbia, Pennsylvania
BOARD OF WATER COMMISSIONERS, Detroit, Michigan
CITY OF FREDERICK WATER DEPT., Frederick, Maryland
PUBLIC SERVICE COMMISSION, City of Halifax, N.S., Public Water Supply
WATER BUREAU OF THE METROPOLITAN DISTRICT, Hartford, Connecticut
MUNICIPAL WATER WORKS, Huntsville, Alabama
BUREAU OF WATER, Lancaster, Pennsylvania
CITY OF LYNCHBURG WATER DEPARTMENT, Lynchburg, Virginia
MOBILE WATER WORKS COMPANY, Mobile, Alabama
QUEBEC HYDRO-ELECTRIC COMMISSION, Montreal, Quebec
PUBLIC WORKS DEPT., WATER-WORKS & SEWERAGE DIV., Montreal, Quebec
WATERWORKS DEPARTMENT, City of Nashville, Tennessee
DEPT. OF WATER, GAS & ELECTRICITY, New York, New York
DEPT. OF PUBLIC WORKS, BUREAU OF WATER, Philadelphia, Pennsylvania
BUREAU OF WATER, DEPT. OF PUBLIC WORKS, Pittsburgh, Pennsylvania
POTTSVILLE WATER COMPANY, Pottsville, Pennsylvania
BUREAU OF WATER, Reading, Pennsylvania
DEPT. OF PUBLIC UTILITIES (WATER), Richmond, Virginia
DIVISION OF WATER & SEWERS, Sacramento, California
WATER & SEWERAGE DEPARTMENT, City of Saint John, N.B.
DEPT. OF PUBLIC UTILITIES, WATER DIVISION, St. Louis, Missouri
WATER DIVISION, DEPT. OF ENGINEERING, Syracuse, New York
DEPT. OF PUBLIC WORKS, Troy, New York
CITY OF UTICA, BOARD OF WATER SUPPLY, Utica, New York
CITY OF WHEELING WATER DEPT., Wheeling, West Virginia
WILMINGTON WATER DEPT., Wilmington, Delaware
WATER DEPARTMENT, City of Winchester, Virginia
WATER DEPARTMENT, City of Winston-Salem, North Carolina
YORK WATER COMPANY, York, Pennsylvania
WATER DEPARTMENT, City of Zanesville, Ohio

TODAY... modernized cast iron pipe, centrifugally cast, is even tougher, stronger, more uniform. *Where needed and specified,* it is centrifugally lined with cement mortar to assure sustained carrying capacity throughout its long years of service.

CAST IRON PIPE'S PROVED RECORD OF DEPENDABILITY IS UNIQUE IN ITS FIELD.

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Avenue, Chicago 3.

CAST Q IRON ®

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

pipe FOR MODERN WATER WORKS OPERATION

CORROSION

is a luxury you can't afford!

PROTECT YOUR INVESTMENT WITH HARCO CATHODIC PROTECTION SYSTEMS

Harco can engineer and install a complete cathodic protection system to preserve your water storage tank, pipe lines, filter beds, flocculators, clarifiers, grit and sludge collectors, etc. Foremost in the field, Harco provides complete job-engineered systems or contract installations. To reduce excessive maintenance and replacement costs...and to eliminate corrosion ...specify Harco! First in the Field of Cathodic Protection.

Write today for catalog or call Montrose 2-2080

THE HARCO CORPORATION

17023 Broadway • Cleveland, Ohio

Harco

CATHODIC PROTECTION DIVISION

Cleveland • New York • Chicago • Philadelphia • Detroit • St. Louis • Louisville • Minneapolis • Oklahoma City
Los Angeles • Seattle • Houston • Atlanta • Lynchburg • Pittsburgh • Albany • Davenport • Toronto, Canada

MAKE YOUR LAWN AREAS "THE PRIDE OF THE TOWN"

E.W.T. SELECTIVE WEED-KILLER

Keep your lawn areas, seeded traffic islands and other improved areas the beauty spots they should be—with E.W.T. *Selective* Weed-Killer. Non-injurious to most grasses, but one spraying in economical solution (a cupful to 24 gallons of water) has proven successful for clearing rights-of-way of poison ivy, barberry, honeysuckle, poison sumac, locust, wild cherry and other persistent perennials and shrubs—including many species of common broad-leaved noxious weeds.

AND . . . WHERE NO VEGETATION WHATEVER IS WANTED . . .

DOLGE SS WEED-KILLER

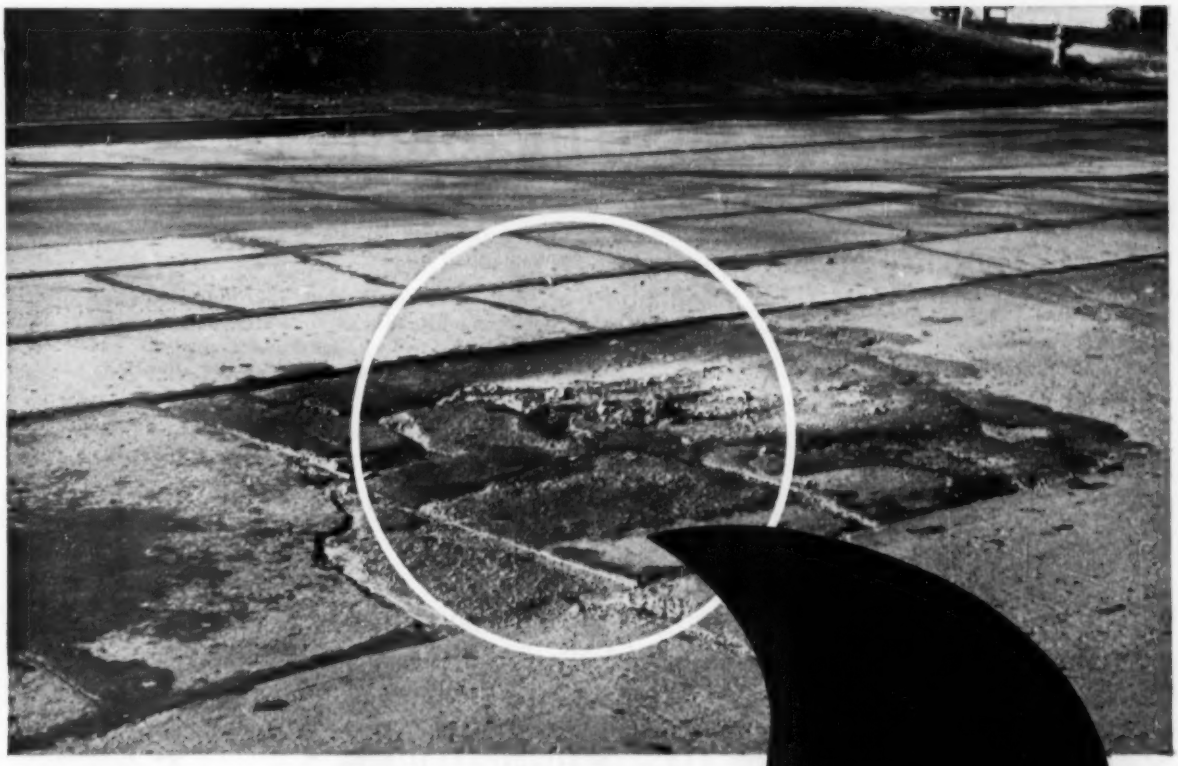
Ideal for your parking areas and driveways, along fences and abutments. KILLS vegetation and windblown seeds on contact, then works down through the soil to the roots, sterilizing the surrounding earth. Here is truly effective, long-lasting protection against unwanted plant growth.

Please write for illustrated, easy-to-understand literature on scientific weed control. Your Dolge Service Man, too, will be glad to answer your questions.

FOR FREE SANITARY SURVEY
of your buildings
see your
DOLGE SERVICE MAN

dependable DOLGE

WESTPORT, CONNECTICUT



How do **you** treat this maintenance headache?

What do you do when street and road surfaces fail? Patch them? Resurface? Rebuild? Actually, none of these is a permanent cure unless you *also* remove the cause of the trouble. Experience proves that in four out of five cases, the underlying cause of surface failures is excess water in the subgrade.

You can remove unwanted water once and for all with the help of Armco Perforated Pipe. Installed at the correct depth and location, a subdrain of Armco Pipe will keep the subgrade dry and stable and stop costly maintenance.

Scientifically-placed holes in the pipe admit water, yet exclude solids that would clog the line. And there's no danger of cracking or crushing. Armco Pipe has the flexible strength of corrugated metal design to assure long, trouble-free service. Coupling bands, formed to fit the pipe corrugations, keep joints tight and pipe in alignment.

Installation is quick and easy—costs are low, too. A small crew can do the job quickly with ordinary hand tools. Long, 20-foot sections mean fewer pieces to handle—fewer joints to make. Two men can readily lift, set in place, and join each section.

Write us for complete information about saving the surface with Armco Perforated Pipe. Armco Drainage & Metal Products, Inc., 2634 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. Export: The Armco International Corporation.

ARMCO *Perforated Pipe*

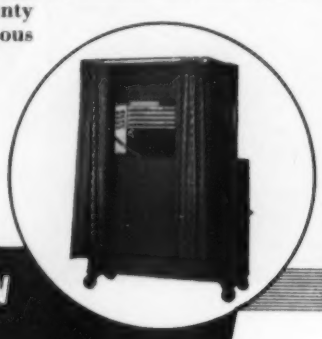
IN CHILLICOTHE, OHIO . . .

Voting is Easy and Speedy...

Everything, machine-wise, clicked in perfect fashion at Tuesday's election, without a mechanical hitch.

Moreover, voters took to the new voting machines like ducks to water and without grumbling. They generously praised the new method and marveled at the simplicity of operation.

It all adds up, officials say, to prove that Automatic Voting Machines in Chillicothe and Ross County are a tremendous success.



Reprint from Chillicothe, Ohio Gazette, November 3, 1954

AUTOMATIC VOTING MACHINE CORPORATION
JAMESTOWN, NEW YORK

PRESCRIPTION Rx FOR BETTER TRAFFIC CONTROL

FLEXIBLE—
tailor-made to suit your own requirements for coin combinations and time intervals.

EFFICIENT—
simple to operate, highly visible for easy enforcement, ruggedly built for accurate timing in any kind of weather.

ECONOMICAL—
provide substantial savings in law enforcement, maintenance, and replacement.

For complete data, write to

THE KARPARK CORPORATION
CINCINNATI 6, OHIO

Traffic Control, parking, and parking enforcement can become an efficient and economical operation in your city —when you install the dependable KARPARK TWIN-O-MATIC or UNIMATIC parking meters. They're superbly built by the famous HERSCHEDE HALL CLOCK COMPANY, makers of America's finest clocks.

KARPARK TWIN-O-MATIC
Times two cars with one installation. Adjusts to any desired change in regulations. Reduces maintenance and collection costs to unheard-of lows. Ruggedly built for long life.

KARPARK UNIMATIC
For single car parking. Can be used for an entire system of single car parking, or, when used with Twin-O-Matic, can be placed at street ends and special single locations.

Available with
Automatic Dump System, Sealable Boxes, or Open Top Boxes.

In Canada TWIN METER CO. OF CANADA, LTD. 5002 Park Avenue, Montreal 9, Quebec

Plan NOW to

ANSWER THIS SUMMER'S ODOR COMPLAINTS WITH

ORTHOSOLV

The Chlorobenzene that MIXES WITH WATER

For Low-Cost, Easy Use!

Typical Applications of ORTHOSOLV

- Incinerator smoke
- Sewage plants
- New excess-capacity sewers
- Drainage ditches
- Storm sewers
- Sewer breaks
- De-watering of sludge
- Fish market areas
- Land fill refuse disposal
- Refuse cans and trucks
- Dog kennels
- Rendering plants

NOTE: ORTHOSOLV can be safely recommended to private individuals or business concerns for the elimination of odor-causing conditions.

ORTHOSOLV is a concentrated, 100% active material which affords effective odor control even when diluted with as much as *1 part to 100 parts of water!*

It has been used and proven effective in controlling odors from a wide variety of sources in municipalities all over the country.

ORTHOSOLV solutions are *low in cost* and easy to use with street flushers, pressure pumps and hand sprayers.

If you have a particular odor problem, write us giving details and we will be glad to send you our recommendations for controlling it. For FREE LITERATURE and TEST SAMPLES** use coupon below.

Other Applications of ORTHOSOLV

Orthosolv is also a highly efficient water dispersible solvent-cleaner for the removal of:

1. Grease and tar from trucks and equipment
2. Oils and greases from concrete floors

Orthosolv can be removed with a water flush or a steam jenny. Orthosolv is safe. It has a high flash point and is not a fire hazard.

SOLVAY

*Trade Mark
**In Western Hemisphere Countries only

Mail Coupon Today for Free Literature and Test Samples!

Allied Chemical

SOLVAY PROCESS DIVISION
ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

Gentlemen: Please send me WITHOUT COST OR OBLIGATION:**

☐ TEST SAMPLES

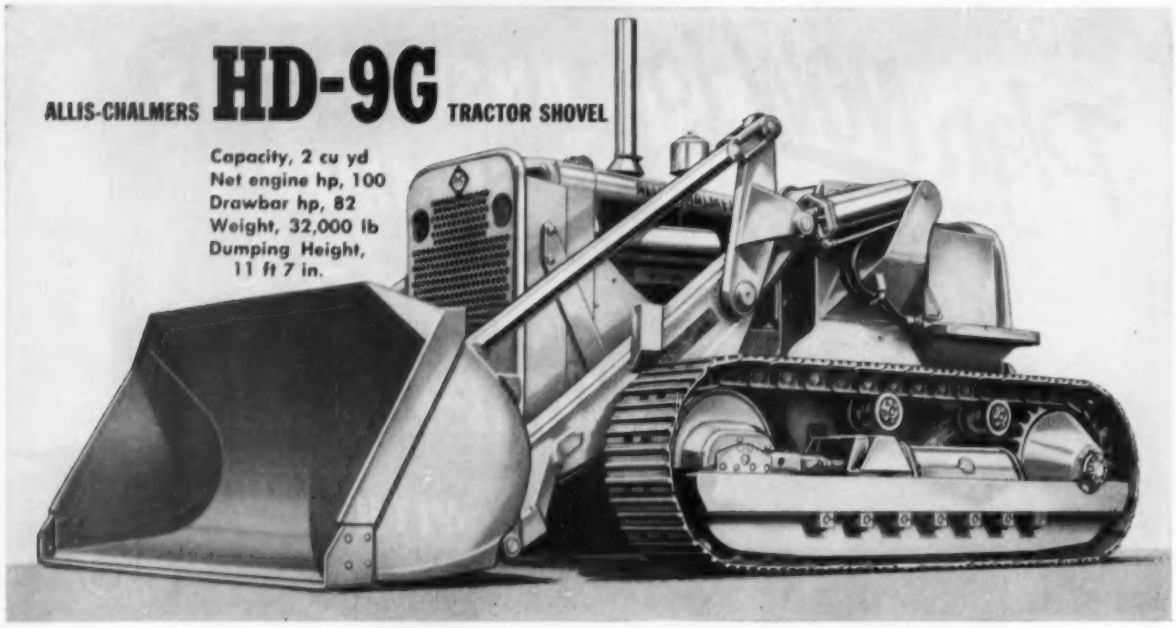
FREE LITERATURE:
☐ Orthosolv for Controlling Objectionable Odors
☐ Orthosolv for Use as a Solvent-Cleaner

Name _____

Title _____ Affiliation _____

Address _____

City _____ Zone _____ State _____ AD-4

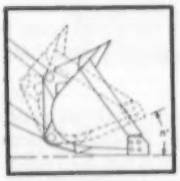


POPULAR 2-YD HD-9G TRACTOR SHOVEL NOW OFFERS

Higher Work Capacity

Design refinements in the Allis-Chalmers HD-9G now make it even more productive than ever. First, the net engine output has been increased to 100 hp, with 23,000 lb of push for extra crowding and digging ability, fast work cycles.

Streamlined bucket design now helps roll in large loads with less tractor effort. The back of the bucket has been brought forward and the sides extended to cut spillage, put more pay load where it's wanted. Cleaner dumping with the new bucket saves the operator time and effort shaking out loads.



A new addition to the wide variety of attachments available for the HD-9G Tractor Shovel is the Tip-Back bucket which allows the operator to roll the bucket back approximately 25° at ground level. Ideal for handling greater capacities of loose stockpiled materials, the Tip-Back bucket can be carried lower to the ground for greater stability . . . can load bulky objects easier.

New-type ceramic master clutch lining reduces lever pull, makes it easier for the operator to do more. The new HD-9G helps the operator do more in other ways, too — giving him full vision, fast and easy control, cleaner platform and more comfortable seat from which to work, and more working time with truck wheels, support rollers and idlers that need greasing only once every 1,000 hours.

Lower Operating Cost

Design improvements also add longer life to the HD-9G under all work conditions. Heavy box-section booms are 50 percent stronger, assuring proper alignment even working in the toughest materials. The low design of the new HD-9G combination stabilizer and cowl not only offers easy accessibility for maintenance and service, but contributes to maximum operator vision. New ceramic master clutch lining operates longer between adjustments, increases clutch life.

Hydraulic system provides new maintenance simplicity, safety of operation, as well as improved visibility. With new-style tank, there are few external fittings, greatly reducing possibility of outside leaks. Magnetic filters and suction-line screens protect the entire system from damaging grit. New, improved hydraulic pump is designed for long life as well as fast and accurate bucket action.

Heavy-duty truck wheels and idlers are available for particularly tough working conditions. One-piece, full-length main frame permits unit construction so that major assemblies can be removed without disturbing adjacent units, putting tractor back on the job in hours rather than days.

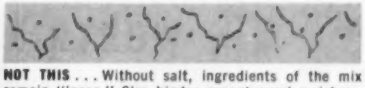
☆ ☆ ☆

See your Allis-Chalmers dealer for further information on what the HD-9G can do for you — or a demonstration right on your job.

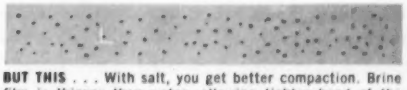
ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

3 BASIC REASONS WHY
STERLING ROCK SALT STABILIZED ROADS
Wear Better, Longer . . . with Less Maintenance!

1. Greater Compaction Means Greater Density!

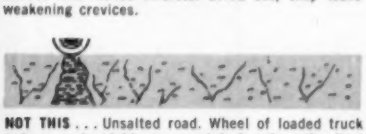


NOT THIS . . . Without salt, ingredients of the mix remain "loose." Clay binder cannot repel moisture. Excess rain makes rivulets. Dried out, they leave weakening crevices.

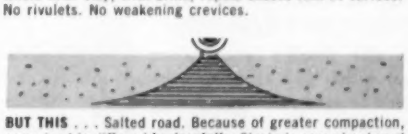


BUT THIS . . . With salt, you get better compaction. Brine film is thinner than water, allowing tighter bond of the whole mix. Clay, with brine, repels excess rain at surface. No rivulets. No weakening crevices.

2. Greater Load Transference Means Longer Road Life!

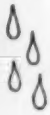


NOT THIS . . . Unsalted road. Wheel of loaded truck puts a great weight on one point of surface. Roadbed supports load **vertically** . . . by only the structure directly beneath it.



BUT THIS . . . Salted road. Because of greater compaction, same load is diffused **horizontally**. Strain is spread outward and downward to about 40 inches at base to each surface inch.

3. All-Weather Resistance Means Lower Maintenance Costs!



EXCESS MOISTURE. Binding materials are not washed out. Clay, with brine, forms colloidal jelly. Repels excess rain, keeps it from weakening structural strength of mix.

EXCESS DRYNESS. Salt recrystallizes. Fills voids. Holds clay binder. Forms protective shield which retains some moisture in mix, resisting suction-like action of traffic.

FREEZING. Salt lowers freezing point. Frost does not penetrate. Prevention of below-surface freezing helps eliminate spring "heave" and pot-holing.

"Nature's own Soil Stabilizer"

For Base . . . Surface . . . and Shoulder Stabilization . . .

STERLING ROCK SALT

INDUSTRIAL DIVISION
INTERNATIONAL SALT COMPANY, INC., SCRANTON, PA.

FREE PAMPHLETS! Up-to-the-minute methods of highway construction and maintenance.
International Salt Co., Inc., Industrial Division, Scranton 2, Pa.

☐ Please send Road Stabilization literature.
☐ Please have representative call.

Name_____

Company_____

Street_____

City_____ Zone___ State_____

the **BOOM** that *stretches*

CUTS your digging COST

This sensational Henry Hydraulic Backhoe new Model C-10, is the only one with a hydraulically-operated, self-telescoping boom that stretches automatically when digging.

Because of this and many other exclusive advantages, the Henry gives you 20% more earth-moving power — more digging depth — more loading height! Digs 10 feet, 6 inches — loads 8 feet high.

A new parallel circuit control valve, plus a regulator valve that adjusts down pressure to soil conditions, combine to give you smooth, fast digging and loading in one continuous motion. Greater stability is assured by the hydraulically-controlled main frame, with 6½ square feet of ground contact and 16 linear feet of ground penetration.

Team this new Henry Hydraulic Backhoe with the Henry Hydraulic Tractor Shovel and almost any tractor becomes a digging-loading unit that saves thousands of dollars.

ASK ANY IMPLEMENT DEALER
OR WRITE US TODAY

To see Henry Earthmovers is to know

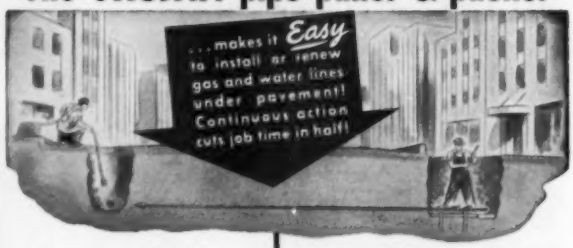
WHY . . .

"You can do it better with a Henry"

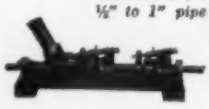
HENRY

MANUFACTURING CO., INC.
1713 North Clay Street
Topeka, Kansas

The TROJAN pipe puller & pusher



MODEL A for ⅛" to 1" pipe



MODEL B for 2" pipe and under

WRITE TODAY FOR FULL DETAILS

With a Trojan, no resetting of grip is required—job goes twice as fast. Heavy duty, all steel construction makes it 4 times stronger than cast iron pusher.

Model A needs only 5 ft. trench. One man can easily lift it in and out of trench and install the average service. 15 tons of pushing pressure possible.

Model B has 3 pushing speeds for different soils. Reversible in 30 seconds.

Double XX heavy, 30" push pipe travels straighter.

The TROJAN Manufacturing Co.
1113 Race Drive • Troy, Ohio
41 Greenway, Hamden, Conn. • Box 465, Memphis, Tenn.

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Corp.
296 South Street Newark 5, New Jersey

Power · Performance · Economy

better than ever in the New

800 FORD TRACTORS!

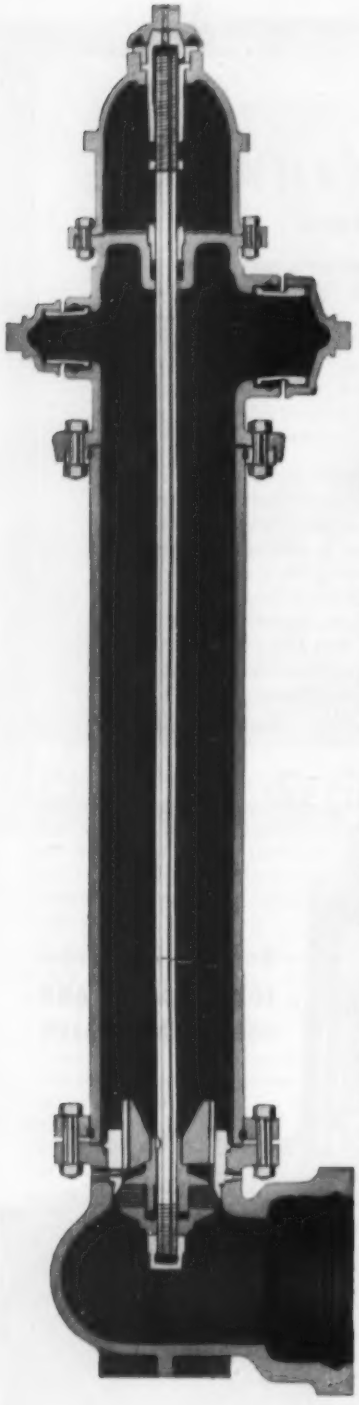
30% More Power **to help you get jobs done on time. Ford's advanced "Red Tiger" engine powers the new 800 series Ford Tractors . . . delivers 42.5 belt and 35 drawbar horsepower.* Here's extra power to move more dirt, handle heavy work loads easier, do more jobs faster!**

New 5-speed Transmission **gives you the right combination of power and speed for every job. There's a creeper gear for finish grading . . . a high speed gear for road travel . . . a full range of speeds in between. Fast, easy forward-reverse shifting speeds loading, backfilling and dozing work.**

Extra weight when you need it! **Specially designed wheel weights, sold separately, let you add easily and quickly more than 1150 pounds to the tractor, in addition to loaded tires. And, for special job conditions, you can add as much as 200 pounds to the tractor's front wheels for extra front end stability.**

Real Economy, Too! **A rock-bottom Ford price and exceptional operating economy make the new 800 Ford Tractor a better investment. See for yourself how it can save money and manpower all year long, on a wide variety of jobs. Ask your nearby Ford Tractor and Equipment Dealer for a demonstration. Ask him to show you the new 600 Ford Tractors, too! Tractor and Implement Division, Ford Motor Company, Birmingham, Michigan.**

***Manufacturers Rating**



To meet every requirement you can depend on the MATHEWS Flange Barrel Hydrant

For maximum reliability at lowest cost, you can't buy better than the Mathews Flange Barrel Hydrant. It has all the features that you look for in a top-quality hydrant—internal parts removable through the barrel, compression-type valve to prevent leaking in case of damage, completely revolving head. In addition, every friction point is protected by at least one bronze surface, and all water-carrying areas are designed to reduce friction and loss of pressure.

And at slight extra cost . . .

The Breakable Flange and Stem Coupling—A specially designed flange in the standpipe just above ground level and a frangible coupling in the hydrant stem are both designed to snap when struck a blow heavy enough to break the hydrant. Both can be replaced quickly and inexpensively without excavation, while the rest of the hydrant remains undamaged.

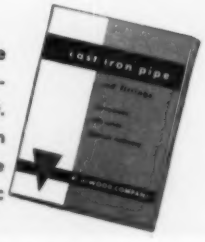
MATHEWS HYDRANTS

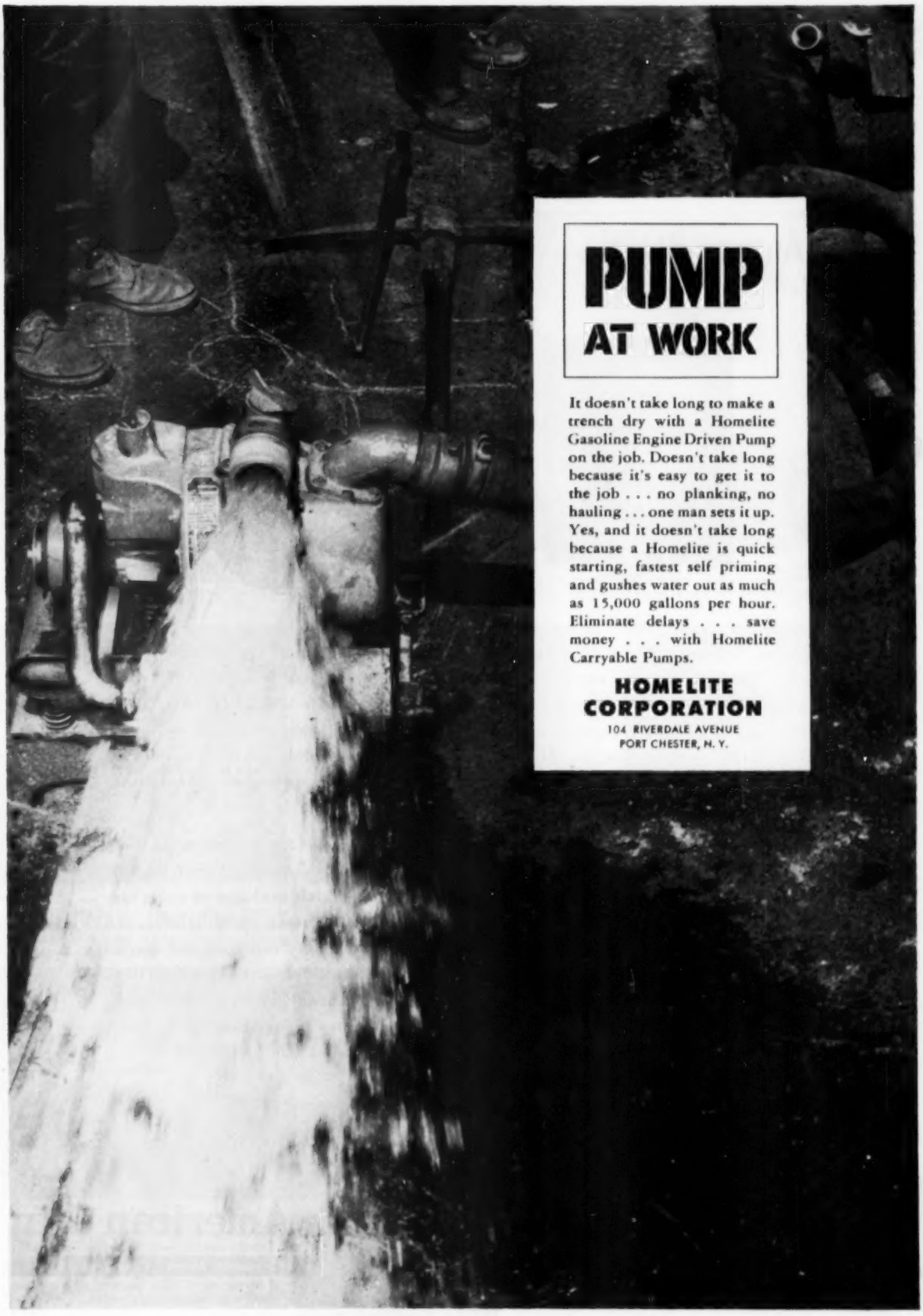
Made by R. D. Wood Company

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

- **Send for this 80-page catalog.** It contains full information about the R. D. Wood line of Cast Iron Pipe, Fire Hydrants, Gate Valves, and Hydraulic Machinery.




PUMP
AT WORK
It doesn't take long to make a trench dry with a Homelite Gasoline Engine Driven Pump on the job. Doesn't take long because it's easy to get it to the job . . . no planking, no hauling . . . one man sets it up. Yes, and it doesn't take long because a Homelite is quick starting, fastest self priming and gushes water out as much as 15,000 gallons per hour. Eliminate delays . . . save money . . . with Homelite Carryable Pumps.
HOMELITE CORPORATION
104 RIVERDALE AVENUE
PORT CHESTER, N. Y.

WHICH piece of equipment did the water superintendent buy?

Answer: BOTH

B. C. Gosney

AUBURN, WASHINGTON (population 6,497) spends $30,000.00 a year on water works and sewerage equipment. The key man is B. C. Gosney. His title is Superintendent of the Water Department. But, like many other water works superintendents, he also acts in the capacity of Sewerage Superintendent.

Mr. Gosney has a lot to do with purchasing, and he takes his magazine reading seriously. Years ago he studied all the hydrant advertising in THE AMERICAN CITY and selected those made by Eddy Valve Company, which he now uses exclusively. An article in THE AMERICAN CITY on sewer cleaning led him to the purchase of a Flexible Sewer Rod Cleaning Machine.

Mr. Gosney writes: "THE AMERICAN CITY has been crossing my desk since 1928. I leaf through each issue looking for articles and information on sewerage and water works. I often show stories on other municipal problems to the appropriate department heads."

THE AMERICAN CITY is written to satisfy not only the needs of men like Mr. Gosney, but also the officials in charge of street construction, traffic, parks, street lighting, and public utilities. City managers and mayors find in it a wealth of material to help them in their administrative jobs. Boost your sales to cities and towns by a continuous advertising program in THE AMERICAN CITY.

The American City | Contractors and Engineers | The School Executive

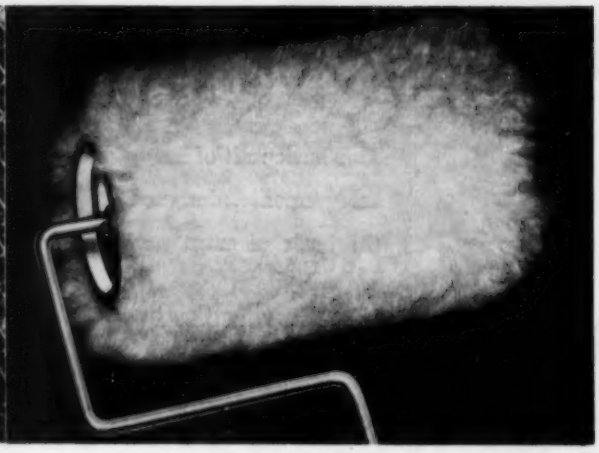
The American City

470 Fourth Avenue, New York 16, N.Y.

Cut wire fence re-coating costs!

Users Report Savings of 30% to 40% With Rust-Oleum Extra-Long Nap Lamb's Wool Roller!

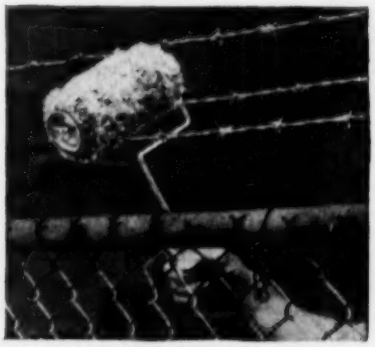
Special roller glides easily over wire sections. (Rusted sections have already been primed with Rust-Oleum 769 Damp-Proof Red Primer to Stop Rust.) Finish coat is Rust-Oleum 470 R.M. Aluminum.



A *new, exclusive, different-type* roller! Greater diameter, specially selected skins, extra-long Lamb's Wool – all combine to give you more coverage faster and easier in the new Rust-Oleum Roller-Coating System.

Close-up shows how Extra-Long Nap Wool reaches around to coat approximately 70% of other side of fence at same time. Rust-Oleum's *exclusive* penetrating qualities saturate cross wire sections for desired mil thickness.

Man follows with "dry" roller on opposite side of fence to catch and use surplus "tears" and quickly coat remaining 30% of wire sections.



Even barbed wire sections can be roller-coated in one easy pass. 99% of the material is used on the fence – *not* on the workers, *not* on the ground.

On long distances of fencing, a 5 man production "team" can achieve even greater savings. The first man wirebrushes the surface to remove dirt, dust, rust scale, etc. The second man applies Rust-Oleum liberally by roller, coating the wire sections and barbed wire. The third man follows on the opposite side of the fence with a "dry" roller to catch and use the surplus. The fourth and fifth men work on opposite sides of the fence, brushing the pipe framework and the barbed wire arms. See how this new Rust-Oleum system can save you money. Attach coupon to your letterhead, mail *today*.

RUST-OLEUM®

STOPS RUST!

ATTACH TO YOUR LETTERHEAD – MAIL TODAY!

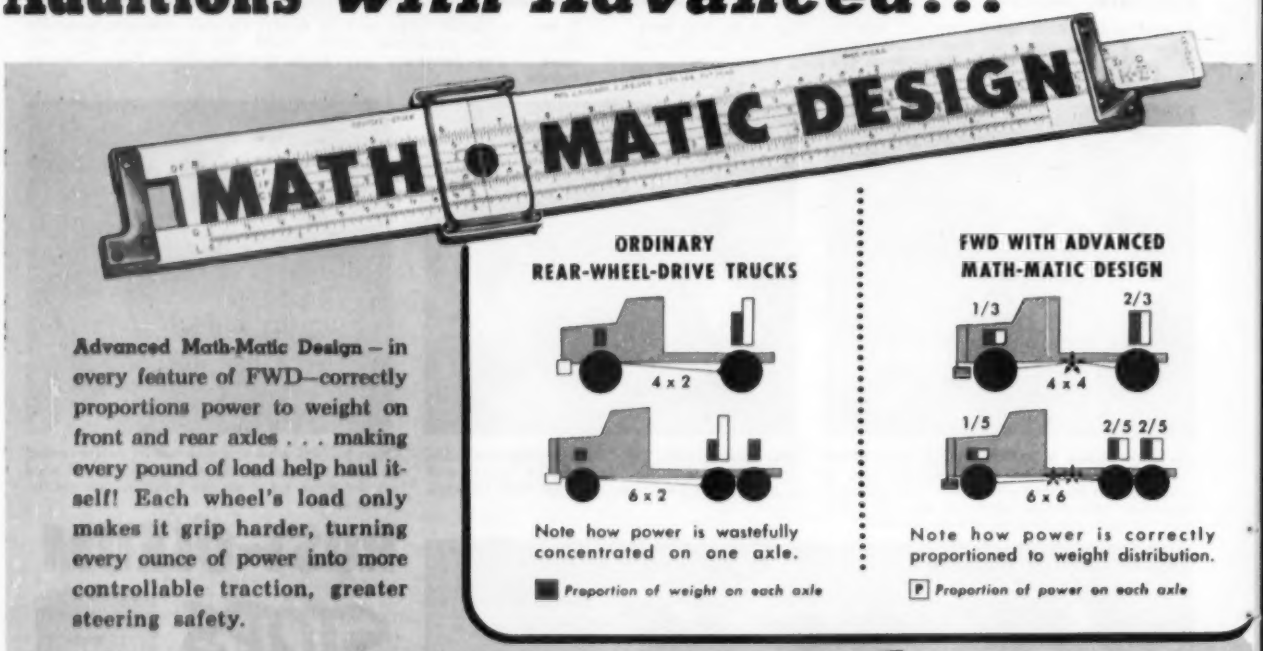
RUST-OLEUM CORPORATION
2514 Oakton Street, Evanston, Illinois

Please show us how your new Extra-Long Nap Lamb's Wool Roller will cut our wire fence re-coating costs. Include prices, complete literature about Rust-Oleum and nearest source of supply. We have approximately_____ yards of wire fencing.

"More than just a Truck—" you want in a

This basic unit of heavy-duty driving power opens up a whole new concept of on-the-job achievement...designed to out-perform mass produced, mass marketed trucks on the basis of extra power, dependability and economy of operation.

More of Everything in these Improved Additions *with Advanced...*



Advanced Math-Matic Design – in every feature of FWD—correctly proportions power to weight on front and rear axles . . . making every pound of load help haul itself! Each wheel's load only makes it grip harder, turning every ounce of power into more controllable traction, greater steering safety.

WRITE TODAY . . . for illustrated product folders on units in the weight category you normally use. Four and six wheel drive units from 14,500 to 60,000 lbs. G.V.W.

We'll also send your free copy of "The Truck That Went to College"—report of 7 years' truck research by the University of Wisconsin's College of Engineering.

BUILDERS OF AMERICA'S FWD *FOREMOST HEAVY-DUTY TRUCKS*

MATH • MATIC DESIGN

THE FOUR WHEEL DRIVE AUTO COMPANY

yet...more of Everything Truck!

★Higher power-weight ratio!

★Up to 82% greater tractive ability!

★30 to 37% longer tire life!

★Greatest operating safety!

★Greater load-carrying capacity!

★Better weight distribution!

★At no increase in fuel consumption!

CUSTOM-ENGINEERED! More Driving Power Less Dead Weight thru Stronger, Lighter Alloy Steels and Advanced Math-Matic Design!

Now—more than ever—more of the weight is working weight in FWDs. New, lighter, tougher steels cut dead weight, increase FWD load-carrying capacity by improving power-weight ratios.

WHAT'S YOUR HEAVY-DUTY TRUCKING PROBLEM?
Along our nation's highways, throughout the world's oil fields, over the rugged terrain utility crews must travel ...anywhere there's tough, heavy work to be done—you'll find FWDs shouldering more than their share of heavy-duty problems. That's what FWDs are for... the tough jobs in tough places, where conventional trucks can't even travel.

CLINTONVILLE, WISCONSIN, *Canadian Factory* KITCHENER, ONTARIO

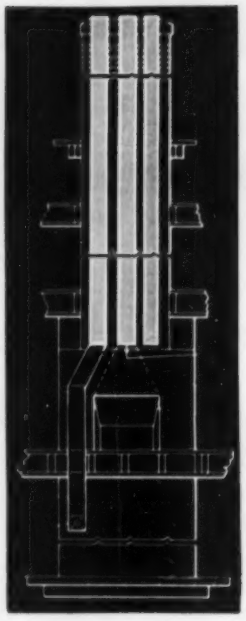
Now it has been proved

Protect the Home AND the Community

with

Vitrified Clay FLUE LINING

Available in round, square and modular sizes — regular fired or glazed.



Fire prevention is everybody's business. That's why builders and city officials alike put their stamp of approval on progressive building codes that call for Vitrified Clay Flue Lining. Never-wear-out Clay Flue Lining permanently fireproofs the chimney, protecting the home and the community against one of the most common causes of destructive fires.

CLAY FLUE LINING Institute

WRITE FOR "Recommendations for Chimney and Flue Lining Construction." This Bulletin is a manual for safer chimney construction and a practical guide for those concerned with designing, construction and local building codes.

You Can Trust This Mark of Quality

CLAY FLUE LINING INSTITUTE
611C First National Tower, Akron 8, Ohio

CONTACT AN INSTITUTE MEMBER WHEN YOU WANT THE BEST

American Vitrified Products Co. • Dee Clay Products Co., Inc. The Evans Brick Co. • The Kaul Clay Mfg. Co. • The Kopp Clay Co. • Larson Clay Pipe Co. • Malvern Flue Lining, Inc. Mill Hall Clay Products, Inc. • Natco Corp. • Peerless Clay Corp. Straitsville Brick Co.

FL-455-5A

FIRST

. . . and Best!

TIFA

TODD INSECTICIDAL FOG APPLICATOR

Successfully Used for over 10 Years in Community Fly and Mosquito Programs

Tifa was first in the field of fog applicators. Tests have proved it best in the field for space control around the community . . . on the dump, over pools, in suburbs, everywhere insects swarm!

This amazing machine discharges newly-developed insecticides as well as the older types in a true, clean fog which spreads quickly and permeates the deepest crevices. This ability means a better insect control program for your community. Put Tifa to work for you!

Efficiency Features

Uses insecticides in solutions, emulsions or suspensions.

Produces penetrating fog, dry or wet as you wish.

Droplet Control ranges from ½ to 200 Microns.

CARRYING

Underwriters' Listing Seal

Write for illustrated folder with full details and official comments.

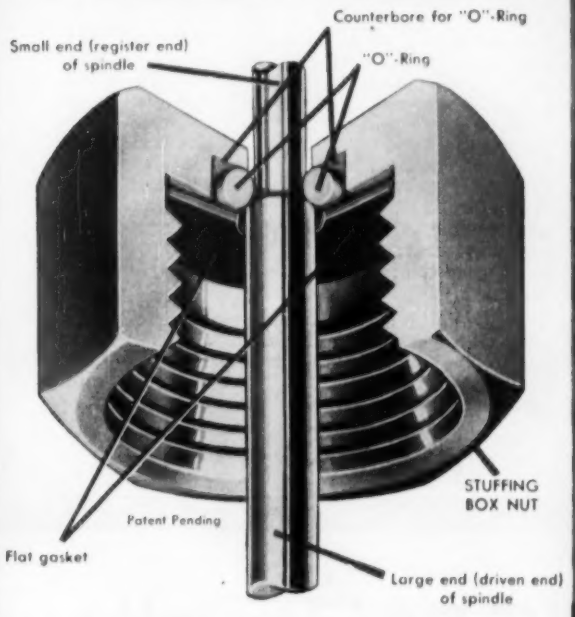
COMBUSTION EQUIPMENT DIVISION
TODD SHIPYARDS CORPORATION
81-16 45th Avenue, Elmhurst 73, New York

Now it has been proved...

The Exclusive Rockwell "O"-RING

Water Meter Stuffing Box Nut Assembly

Eliminates Stuffing Box Leaks, Binds, Troubles, Expense...



Cutaway View in Enlarged Detail

HOW IT WORKS

This sectioned view shows how the "O"-Ring press-fits into a counterbore in the packing nut. The counterbore has a slightly smaller diameter than that of the "O"-Ring to hold the ring under compression. This slight compression alone seals the stuffing box spindle bottle-tight *without binding*. The nut can be force tightened with a wrench without applying any additional compression.

Three Years of Proven Success In The Field

The Rockwell "O"-Ring Stuffing Box Nut Assembly was perfected over three years ago. After extensive laboratory and field tests and without any "fanfare" or publicity it has been used in Rockwell water meters built since that time. The superior performance of "O"-Ring construction is now a proven fact. It provides a permanent, leak tight seal at a very vulnerable point. And it actually improves meter performance by reducing friction at the stuffing box spindle. You get it only in Rockwell meters of all sizes and types. There's no extra cost, but a lot of extra value and satisfaction. Ask your Rockwell representative to demonstrate this great new advance in water meter construction.

The Rockwell "O"-Ring assembly is also available as an economical replacement part. It is interchangeable with the stuffing box nuts on all earlier model Rockwell meters.

ROCKWELL MANUFACTURING COMPANY PITTSBURGH 8, PA.

Atlanta Boston Charlotte Chicago Dallas Houston Los Angeles Midland, Texas N. Kansas City, Mo. New York Philadelphia Pittsburgh San Francisco Seattle Shreveport Tulsa

ELECTRIC POWER

DELCO-REMY ThunderVolt A.C. GENERATORS FOR EXTRA-HEAVY ELECTRICAL LOADS

Delco-Remy's new ThunderVolt-12 A.C.-D.C. charging systems are the answer to the *extra-heavy* electrical demands of late-model utility trucks, police prowl cars, and other vehicles equipped with two-way radio, floodlights, or other special electrical units. High wattage output is ample for heaviest electrical loads . . . generators pick up discharged batteries quickly in emergencies. Delco-Remy A.C.-D.C. charging systems are unexcelled at curb-idle . . . furnish up to 180 amperes at higher engine speeds . . . are dependable under the most rugged operating conditions at all engine speeds.

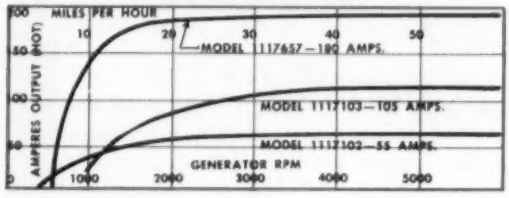
ThunderVolt 6 and 12 application packages, complete with installation instruction sheets for popular makes of cars and trucks, are available. Conversion is simple. See your nearest United Motors distributor for additional information.

A.C. GENERATOR PERFORMANCE DATA

Model	Volts	Cut-In RPM*	Curb Idle Amperes*	Maximum Amperes	Power Watts	Recommended For
1117102	12	600	30-40	55	660	All speeds.
1117103	12	975	6	105	1260	All speeds.
1117657	12	625	100	180	2160	All speeds.
1117062-3-4	6	750	30-40	90	540	All speeds.

*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

A.C. GENERATOR OUTPUT CURVES



DELCO-REMY ThunderVolt D.C. GENERATORS FOR MEDIUM-TO-HEAVY ELECTRICAL LOADS

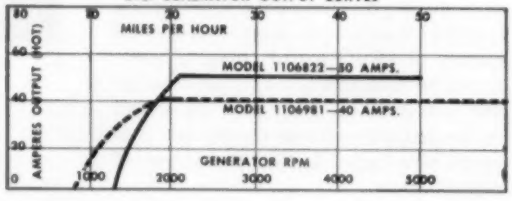
Delco-Remy's ThunderVolt-12 extra-output D.C. generator is an economical answer to the electrical needs of late-model utility trucks, suburban police cars, rural mail cars . . . other vehicles with additional lights, two-way radios, or other special electrical equipment in medium- to heavy-duty service. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain. Performance data on typical Delco-Remy ThunderVolt D.C. generators are shown at the right. For further details and application data, see your nearest United Motors distributor.

D.C. GENERATOR PERFORMANCE DATA

Model	Volts	Cut-In RPM*	Curb Idle Amperes*	Maximum Amperes	Power Watts	Recommended For
1106822	12	1300	0	50	600	Medium to high speeds.
1106981	12	800	15	40	480	Low speeds & idling.
1106757	6	830	15	55	330	Medium to high speeds.
1106758	6	600	25	45	270	Medium to high speeds.
1106977	6	600	28	55	330	Low speeds & idling.

*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

D.C. GENERATOR OUTPUT CURVES

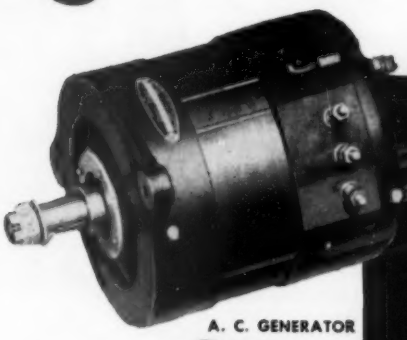


Delco-Remy
ThunderVolt
ELECTRICAL SYSTEMS

DELCO-REMY • DIVISION OF GENERAL MOTORS • ANDERSON, INDIANA

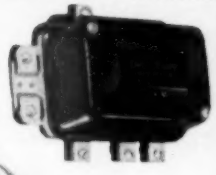
A CENTURY

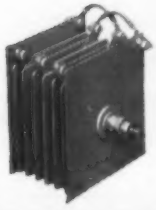
right for the job



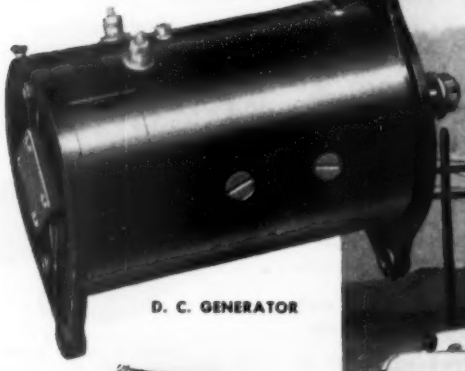
A. C. GENERATOR

REGULATOR

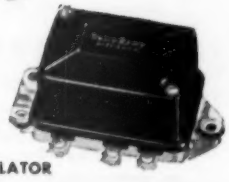




RECTIFIER



D. C. GENERATOR



REGULATOR

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A GENERAL MOTORS PRODUCT GM A UNITED MOTORS LINE

NICHOLS NEVER-STAIN

RUST-PROOF
Aluminum Alloy
CHAIN LINK FENCING

America's most beautiful, most maintenance-free fence

★ **RUST-PROOF** — Never requires painting. Cuts costly maintenance.

★ **LONG-LASTING BEAUTY** — Provides dignified protection to any area.

★ **ECONOMICAL** — No other fence in this price range offers all these advantages. Savings in painting alone will soon pay for the fence itself.

The ideal fence for parks, gardens, pools, sport courts, storage and equipment areas. Available in either No. 6 or No. 9 gauge Hi-Temper Aluminum Alloy Wire in 36" to 120" heights. "Never-Stain" 4-point Aluminum Barbed Wire also available in 1320 ft. spools.

Consult yellow pages of your local phone directory for name of nearest Nichol's franchised fence erector serving your territory, or write us direct, Address Dept. AC-1.

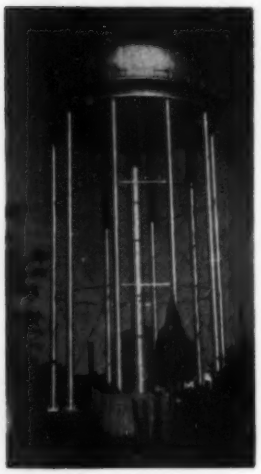
NICHOLS WIRE & ALUMINUM CO.
Davenport, Iowa
World's Largest Manufacturers of Aluminum Nails

A CENTURY OF EXPERIENCE IN TANK DESIGN

● Established in 1854, COLE elevated tanks have provided a dependable water supply for mills and communities.

COLE quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank.

Send us your inquiries for tanks from 5,000 to 2,000,000 gallons—stating capacity, height to bottom, and location.



●

Write for latest Cole catalog—*Tank Talk*.

●

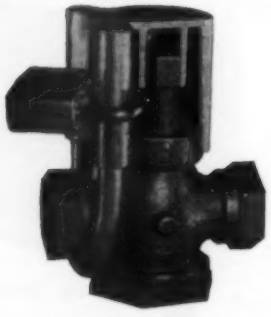
R. D. COLE
Manufacturing Co., Newnan, Ga.

- TANKS
- TOWERS
- CYLINDERS
- VESSELS
- STANDPIPES

NEW BREMER CURB LOCK Controls Water Cut-Offs

- Saves Call Backs
- One Trip Installation
- No Need to Remove Meter
- Fits Most Sizes
- Controls Sub-Division Problem
- Controls Vacant House Problem
- Prevents Loss of Revenue
- Foolproof Locking Device
- Used When and Where Needed
- Lifetime Unit
- Does Not Wear
- Will Not Corrode

A few territories still open. Interested distributors please write for details.



Developed in cooperation with Jacksonville, Florida Water Department

$3.95 each

F.O.B. Jacksonville, Fla.

From 1 to 5 Bremer Curb Locks per 100 services is usually sufficient to positively control water cut-offs

BREMER GREASE, INC.
1107 MARGARET STREET
JACKSONVILLE FLORIDA

Why fleet purchasers buy PAYLOADER® Tractor Shovels

Here are 3 big reasons:

1 PROVEN PERFORMANCE

2 COMPLETE LINE OF MODELS, TYPES and ATTACHMENTS

3 COMPLETE DISTRIBUTOR PARTS and SERVICE FACILITIES

You may never need a *fleet* of tractor-shovels, but you may be certain that those who *do* make careful investigation and study before they buy.

Throughout the nation, an overwhelming majority of states, counties, cities and contractors have chosen "PAYLOADER" tractor-shovels for their fleet purchases and followed up with repeat orders.

If you need one or a hundred, "PAYLOADER" is the most complete, most proven line available — seven sizes up to 2 cu. yd. capacity, with choice of 4 wheel drive, front wheel drive or rear wheel drive. And a nation-wide Distributor organization has the facilities, parts stock and trained personnel to service them promptly.

Some recent fleet purchases

- **13** for N.Y. Thruway Authority
- **12** for Connecticut State Highway Dept.
- **20** for City of Montreal, Que.
- **12** for Arkansas State Hwy. Dept.
- **3** for State of Delaware

PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. • LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

The Frank G. Hough Co.

Send information on all seven sizes of "PAYLOADER" tractor-shovels, and attachments.

NAME _____

TITLE _____

GOV'T. UNIT _____

STREET _____

CITY _____ STATE _____

"BRIGHT BY DAY — BRILLIANT BY NIGHT"

GO RIGHT POLICE DEPT.

WITH NITE-BRIGHT

"NITE-BRIGHT SIGNS" are made of heavy gauge aluminum faced with Scotchlite and give many years of the finest service. See our listing in the Municipal Index.

We can also supply embossed steel non-reflective baked enamel signs and traffic cones. We maintain a stock of steel channel posts for immediate delivery.

Write for special prices on large orders.

Red Stop sign $101

NITE-BRIGHT SIGN COMPANY
140 JAMES STREET, BRIDGEPORT 4, CONN.

HERE IS A REVOLUTIONARY NEW
POCKET-SIZE
LEAK DETECTOR

THAT WILL PAY FOR ITSELF IN
ONE COMPLETE OPERATION

Sensitive—as only modern electronics knows sensitivity.

Compact—weighs only 2¼ pounds and fits conveniently into a coat or jacket pocket.

Simple—any maintenance man quickly learns how to use it. In one typical small city, meter readers used them to find an average of three leaks per day.

Rugged—Operating records show it working perfectly in all sorts of weather, even when handled roughly by different operators.

Efficient—one man can do a complete job of leak detection well. In one small city, these little detectors traced out leaks amounting to almost 10% of the daily pumpage.

Write for prices and complete information.

PRECISION ELECTRONICS CO.
9101 King St. Franklin Park, Ill.

EXPANDING ROOT CUTTER SEWER CLEANER

Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Open and in action removing roots and caked sediment like this.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. Nappanee, Ind.

Handiest Location in PITTSBURGH

Hotel Pittsburgher
PITTSBURGH, PA.
Diamond Street below Grant

Right in the heart of the Golden Triangle

Make the Pittsburgher your stopping place on every trip. Business or pleasure, it's your best address in town . . . easily reached from major highways. 400 outside rooms, radio and TV at no extra charge, bath and circulating ice water. Air conditioned dining rooms, function rooms, and sleeping rooms. Garage service.

a Knott Hotel

ATlantic 1-6970 JOSEPH F. DUDDY, MANAGER

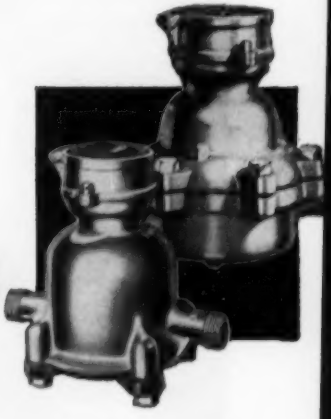
A new trend in municipal water filtration —

Badger meters conserve it better!

MORE than 37-billion cans of food were used by American families last year . . . yet it took *more water than produce* to make these canned products available. For example, more than 15 pounds of water were required for every pound of canned vegetables sold.

Little wonder, then, that Badger meters serve so importantly in thousands of communities. They make certain that homes and industries receive a fair share of the water supply . . . pay only for the water they use.

Famous Badger meters measure water precisely . . . help eliminate waste . . . make water departments more efficient and self-supporting. And service records prove the dependability of Badger meters . . . prove that there are no finer water meters to be had — anywhere!



Badger Water Meters

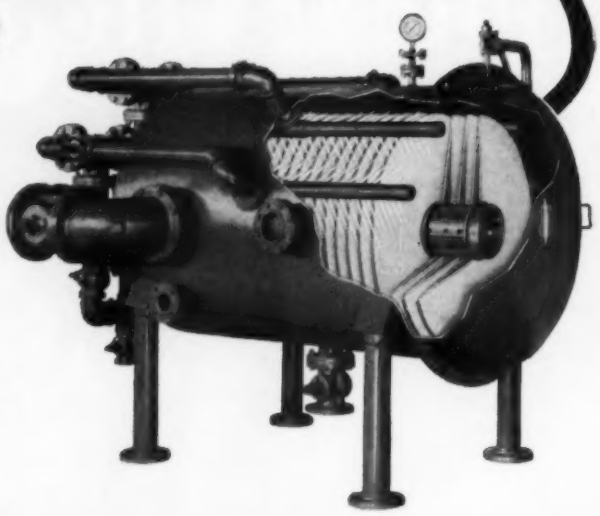
Badger Meter Mfg. Co.
Milwaukee 45, Wisconsin

"Measuring the water of the world for 50 years"

A new trend in municipal water filtration—

The SPARKLER DIATOMITE FILTER MODEL SCJ

has been highly successful in installations now in operation



Reduced operating cost due to long filtering cycles and fast backwash cleaning, together with a remarkably low bacteria count requiring a minimum of chlorination, are features that make this new type filter worthy of the attention of all waterworks engineers.

With every backwash cleaning, the used filter cake is washed out with the residue, and a fresh pre-coat of diatomite applied to the filter plates, providing a completely new sanitary filtering media with each cleaning.

This filter removes all silica, sand, algae, organic matter, silt, etc., from the raw water, and bacteria is reduced up to 80% and even more in some cases. The high quality of water obtained will raise the standard of water produced by some municipal water systems now using old methods of filtration.

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Less than 0.2% of water is required to backwash and clean the largest filter units and a complete fresh precoat of diatomite can be applied and the filter ready to resume operation in 15 minutes.

Operators can be easily trained, no highly skilled specialized personnel is required to insure efficient performance.

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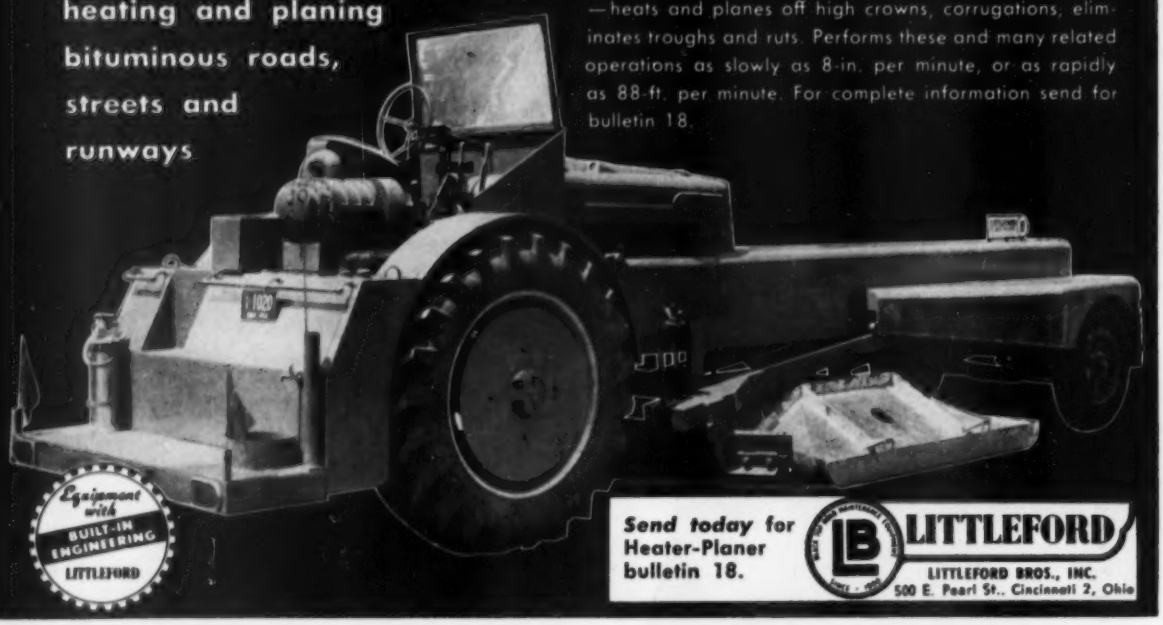

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APRIL 1955 The American City

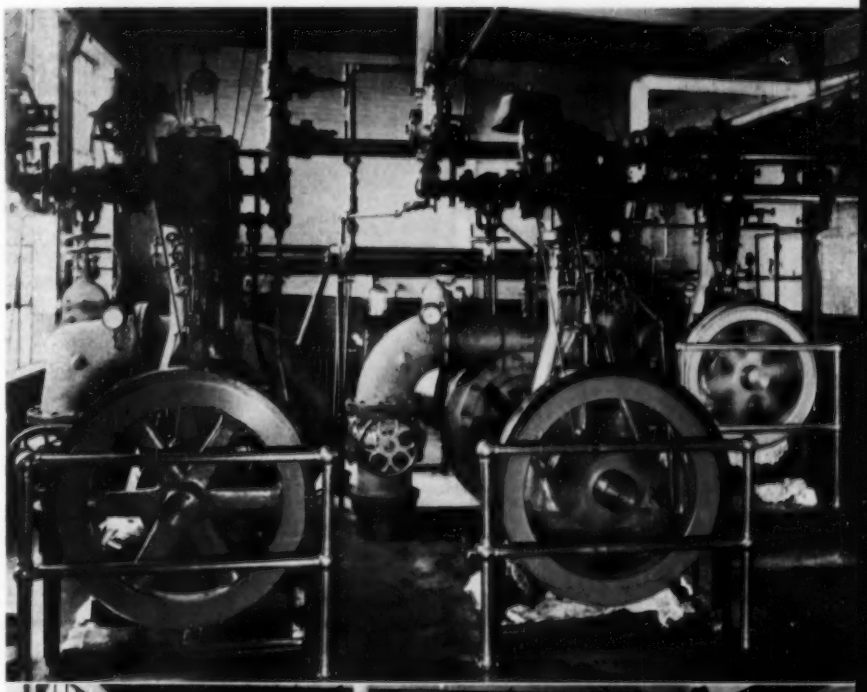
How to Modernize Water and Sewage Plants

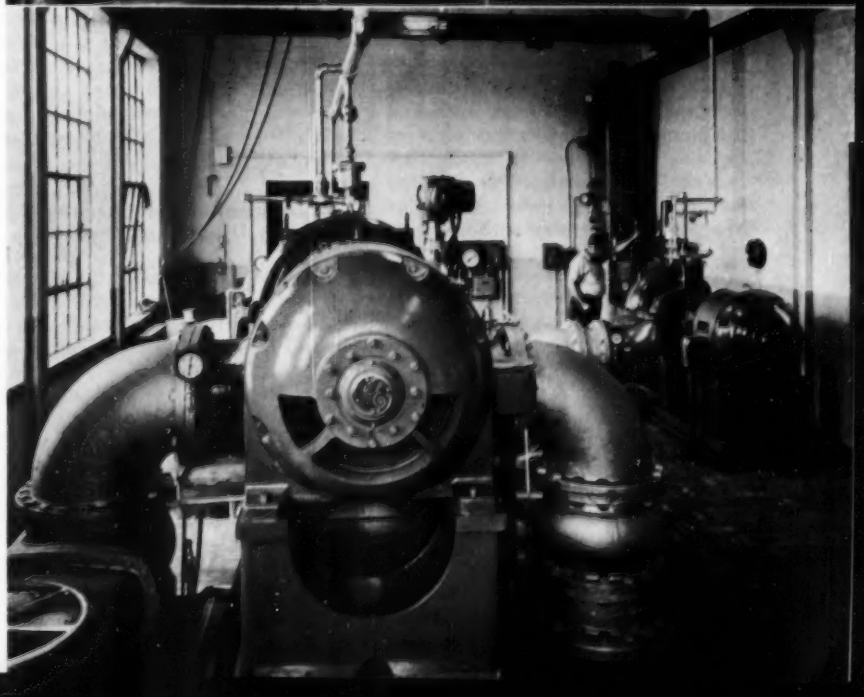
By M. C. BOGGIS
Application Engineer for Sewage and Water Works
General Electric Company
Schenectady, N. Y.

WATER and sewage plants feature the basic philosophy of permanence. Long service life permeates the design of these plants, the selection of equipment, and their installation. This, by its very nature, makes the work a challenge.

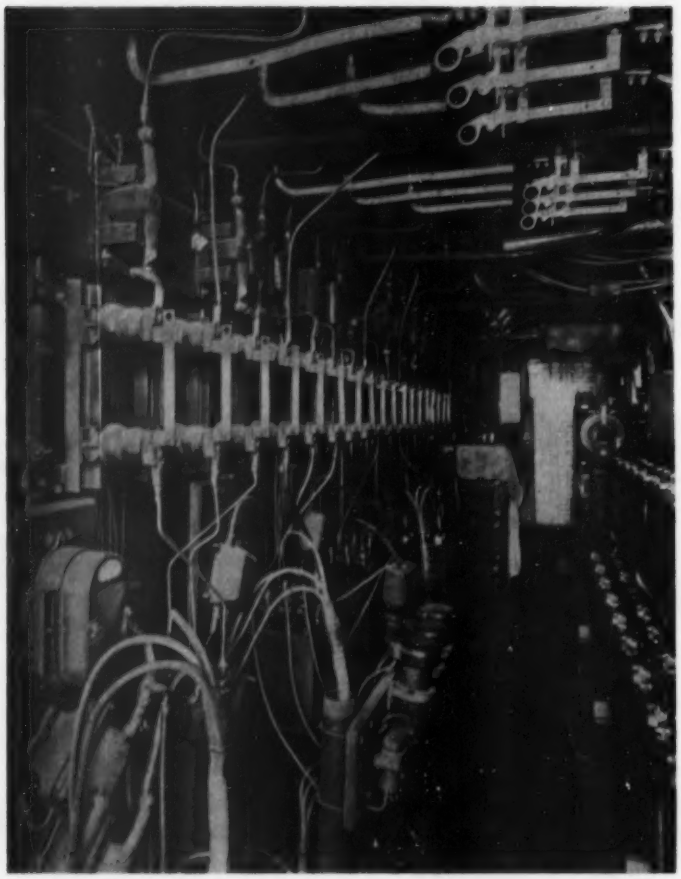
First, someone has to estimate the future population growth and the increase in water usage. Next, one has to recognize that the equipment selected may become obsolete before it has served its useful life. Consequently, these plants will require modernization if they are to give their cities the kind of thrifty service they deserve.

Modernization of electrical systems and apparatus has been dramatic during past years. Over-all modernization is needed badly today. Approximately 15% of existing sewage plants were built 35 years ago, and 35% are 25 years old, giving obsolescence all the opportunity it needs to wipe out the usefulness of these plants. Of the 7,000 sewage plants now in service, approximately 2,500 are considered inadequate and re-





(Top right) The Tonawanda, N. Y., pumping station before modernization. Note the waste under the fly wheels to absorb leakage; also the complicated piping. (Right) The modernized station, using DeLaval centrifugals driven by G-E motors. Note the contrasting simplification of the pump installations.



This "chamber of horrors" was typical of the old open type of switchgear that has now been replaced by safe and more reliable metal-clad equipment.

quire either enlarging or modernization or both.

Water-supply systems present the same picture. At least 20% of the existing systems are inadequate today. One out of every seven cities of 10,000 or more people had to restrict water use last summer.

Even though a water or sewage plant may be entirely adequate and the plant equipment in what appears to be excellent condition, modernization may be economically sound. The last 20 years have seen tremendous improvements in mechanical, electrical, and hydraulic equipment. The 25% more efficient centrifugal pumps and improved motors are outstanding in this regard. In addition to lower operating costs, the proper selection of electrical-system components, in keeping with up-to-date practices, allows realization of initial cost benefits as well as improved over-all system operation.

Consequently, cities can expect substantial modernization programs for their water and sewage works in the relatively near future. This offers the logical opportunity for electrical modernization. If any phase of modernization is attempted the complete system should be reviewed and all obsolete or otherwise undesirable features replaced with modern apparatus and practices. By so doing, it is a good assumption that no further changes will be required for perhaps another 30 years. The methods of financing such work make such a procedure a necessity.

Shortcomings of Outdated Power Distribution Systems

The two main areas of the electrical system where obsolescence creeps in most quickly are the power-distribution system and pump drives. Most of the shortcomings of outdated power-distribution systems and equipment fall into the following list:

Poor voltage conditions. These affect adversely the utilization equipment such as motors, lights, and heating units—the result of circuit overloading or distribution of power at too low a voltage. The economies and other benefits of the load center principle of distribution[1] have been brought to light only in recent years and should be emphasized in a modernization program.

Inadequate interrupting capacity. As electric utility systems expand, short-circuit duties naturally increase, thus making many old circuit protective devices inadequate from the interrupting-capacity standpoint. These situations must be corrected in the interest of protection to personnel and equipment.

Low level of reliability. The inherent need for continuous operation in most water and sewage plants has, in some installations, prompted makeshift secondary interconnections in an attempt to provide dual-power channels. Since this may actually give poorer service reliability to selected loads because the job is not complete, the result is a false sense of security regarding continuity of operation.

Hazards. The most common example of unsafe distribution equipment in old plants is the open switchboard. This form of panel construction, standard 30 years ago, has been replaced by metal-enclosed equipment. The open bus work and knife switches, together with bell-crank operated oil-circuit breakers, present a serious hazard to personnel and offer an obstacle to good plant housekeeping.

Another less common hazard is that of indoor installation of oil-filled transformers without fireproof vaults. The advent of Pyranol, a G-E product, which is dielectric material used as a transformer coolant, permits the convenience of indoor transformer installations without the expense of special vaults to maintain safety.

No provision for growth. Space limitations or equipment-capacity limits curtail expansion to handle increased loading. In many cases, it is necessary to rebuild the power systems "from the ground up" in order to provide for future growth and stay within good engineering practice.

Complexity. Many a plant power-distribution system may have "grown like Topsy" by tacking on feeders and interconnections. The result is an unplanned, complex system which the average plant operator cannot safely operate in emergencies or maintain to provide good service continuity.

Grounding. The safety features of equipment grounding and the greatly improved equipment protection afforded by system grounding have been well publicized.[1,2] However, in

20- to 30-year-old plants, glaring infractions of these practices may be found.

Lightning protection. Coordinated lightning protection has made tremendous progress since many of the existing water and sewage plants were installed. Basic impulse-level determination and the use of surge-protective devices enable greatly improved protection.[1,2]

Pump Drives

In addition to the previously mentioned feature of improved motor efficiency over the years, there are other incentives to replace obsolete drives. These derive from the shortcomings, judged by today's standards, of pump drives in a station requiring modernization. The most important of these include:

Type of drive. The replacement of steam engines with electric motor drives for pumps in a modernization program has been such common practice that little more can be said regarding the obvious benefits.

The proper selection of a type of pump drive is dependent upon many factors.[3,4] In the constant speed class, the wound-rotor motor was installed in many plants purely to meet the power-company inrush limitations on starting specified at that time. Today power utilities can provide service that will permit use of a squirrel-cage induction or a synchronous motor in most replacement cases. The attendant simplification, reduced cost, and efficiency improvement are obvious.

Starting method. The use of a reduced inrush starting method was a foregone conclusion for almost all motors of any consequence until recent years. Today, we should be able to eliminate many such starting methods due to the greatly improved ability of progressive electric utilities to withstand suddenly applied loads at all distribution voltage levels.

Voltage rating. The selection of voltage ratings for motors was not as carefully done years ago as good practice dictates today. The popularity of 2,300 volts as a distribution voltage in the past resulted in the application of motors rated as low as 25 hp, with accompanying high motor and control cost coupled with poor motor design. Conversely, excessively large motors have been supplied from 240-volt buses with attendant penalties in cost due to high current-carrying capacity requirements. Suitable voltage classes for motor ratings have been prescribed,[5] and every effort should be made to follow these rules in a modernization program of a plant.

Insulation protection. Too many designers overlook the high relative humidity common to water and sewage plants producing their deleterious effects on motor windings. Standby equipment, in particular, or any motors that will be operated infrequently, should be modernized to permit heating of the windings during idle periods.

The City of Albany, N. Y., put its sewage-treatment plant in operation in 1919. Lift-pump drives, at that time, consisted of three constant-speed drives rated at 100 hp, and three 150-hp brush-shifting, adjustable speed drives. All of these units were not required simultaneously to handle sewage inflow, and combinations of the adjustable and constant-speed units allowed the operators to match closely the inflow and pumping rates, and still keep some units as standby. In recent years, it has become apparent that the drives have outlived their usefulness.

In order to retire the old drives over a period of years and purchase new equipment out of operating funds, the city decided to replace two of the existing adjustable-speed drives at this time.

Changeover Arrangement

However, the power system in the existing station uses a 2,400-volt motor bus. This voltage level places a financial penalty on the 150-hp motor control and is out of line from the standpoint of good motor design for the 100-hp motors in the station. In view of anticipated replacement of the remaining motors, the city established a 480-volt bus to inaugurate the changeover to a better utilization voltage for this station. The designers did this by adding a second transformer bank that provided the low-voltage service to the station simultaneously with the 2,400-volt service. This arrangement permits a gradual changeover to a 480-volt motor bus over a period of years.

Dual cable feeders from the power company substation strengthened the existing system by providing an alternate power channel in the event of a single cable failure. To equal this feature, provision for a future alternate cable feed in the new 480-volt supply was made plus the adoption of air-circuit breakers as switching devices instead of the double-throw switch as previously used.

Operating experience in this plant indicated that stepless speed adjustment was not required in the adjustable speed drives. The lower cost and lower expected maintenance of wound-rotor motors as compared with the brush-shifting commutator motor made its suitability for this application readily apparent.

The use of motor-operated cam switches for secondary control provide 11 speed points with 20% speed reduction—more than adequate for the application. Primary control and incoming line breakers were provided in Cabinetrol panels meeting the objective of modern, metal-enclosed equipment with easy expansion capabilities.

The long-range plan is to retire the existing obsolete equipment as appropriations permit. The end result of such a program will be a complete conversion of the sewage-plant power distribution system and pump drives to safer, more reliable and economical and modern equipment.

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Urbia and Suburbia

WE have been considering and measuring the relative advantages of the country and the big city—"la campagne" and "la grande ville." I wish to mention the problems of a much more recent phenomenon than either the country or the big city. I refer to suburbia. Only a very small proportion of American families has the opportunity to choose between living in the country and living in a big city. For most, the choice must be between a big city and suburbia. They are faced by a difficult dilemma. Suburbia has many of the advantages of the country and lacks the disadvantages of the city. But also, suburbia has the disadvantages of the country and lacks the advantages of the city!—T. T. McCROSKY.

—From a comment on the papers dealing with "The Dynamic Role of the City in Social Development," at the Columbia Bicentennial Conference.

This little plant, so important to St. Cloud, Fla., has a beautiful setting on the shore of Lake Tohopekaliga.

Infiltration Complicated the

INFILTRATION can be a danger, whether it is a military maneuver by the enemy or an added load on the sewerage system. But when a military commander or an engineer anticipates infiltration and prepares his plans accordingly, he can use it to strengthen his position. Such has been the case of St. Cloud, Fla.

This little central Florida city, sitting on the shore of Lake Tohopekaliga, has a population of 4,000, which will probably be doubled within the next 25 years. The lake has been a great source of pleasure to the city, providing it with boating, fishing, and swimming facilities. However, the city's sewerage program threatened to destroy these facilities.

Septic-Tank Problems

St. Cloud has never neglected its sewerage sanitation. The first sewer installations date back to 1916; major extensions occurred 10 years later; and, today, the system serves approximately 90% of the population. Until the new improvements were made, two large septic tanks provided treatment to the sewage before it was discharged into the lake.

These septic tanks, adequate when the community was small, spelled nothing but trouble when the population grew. Studies by the Florida State Board of Health showed that the tanks were discharging enough pollution to endanger the bathing beaches to warrant their being condemned.

St. Cloud didn't need to be threatened. The city was as anxious as the Board of Health to rescue its bathing beaches. So the city retained the consulting engineering firm of Briley, Wild & Associates, of Daytona Beach, to design the improvements that would correct this difficulty.

The engineers' study of the existing system proved it to be fundamentally sound, but suffering from badly deteriorated joints. Many sections of pipe apparently were bare of joint material. Consequently, water from the ground flowed into them freely, boosting the volume of the sewage greatly. These open joints also threatened to destroy the pavement, since they carried with them a substantial amount of the supporting sandy soil. Open joints presented a problem that the city had not anticipated, but resolved to remedy in the near future.

The engineers first determined where the infiltration was greatest. This permitted them to plan the portions to be reconstructed first, and then to locate new sewers and lift stations designed to handle present peak loads. In estimating the quantity of sewage to be handled, the engineers based their figures on 70 gallons per capita per day for the sewage load, a normally accepted figure; and 80 gallons per capita daily for infiltration, about 2½ times the normal. Thus the provisions for gradually eliminating infiltration automatically provide capacity for the growth of the system.

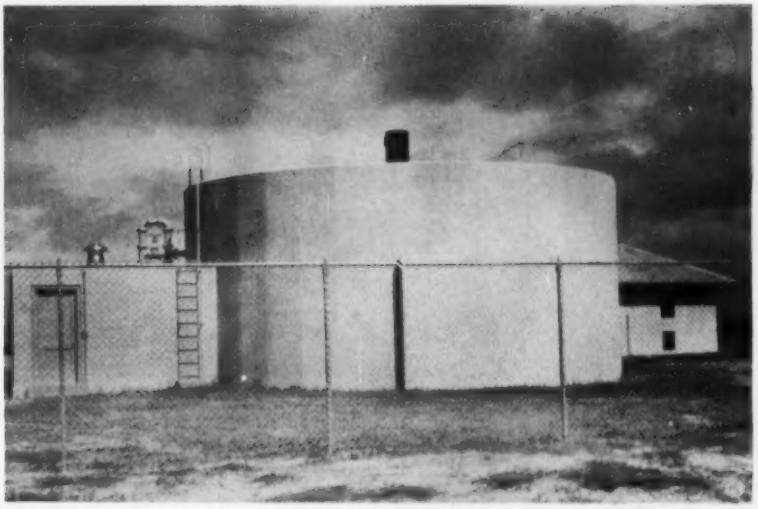
The greatest infiltration occurred in that portion of the sewerage system closest to the lake. By careful selection, it was possible to locate the route of a new interceptor which would serve approximately 90% of the city's population and yet eliminate the area of greatest infiltration.

The sewage that has to be purified in the new treatment plant still is very dilute, permitting the use of primary settling and chlorination to provide the needed protection. The engineers placed the plant on a 5-acre tract just outside the city. The site is large enough so that more thorough treatment may be supplied if conditions should require it in the future.

Nonclog Pumps

The original sewerage system included six pumping stations, one of which was not in use. The new design utilized all these, and one more; the abandoned station became the largest and most important. All were supplied with Fairbanks-Morse bladeless impeller nonclog pumps. The pumping capacities of the station vary from a low of 250 gpm to a high of 2,950 gpm at the main station.

The designers supplied controls at the station serving the area of greatest infiltration so that the normal dry-weather sewage flow would go to the treatment plant. However, when wet weather occurs and infiltration becomes a major factor, the controls automatically divert the entire flow from the station to the old septic tank. All of the pumps are automatically controlled by floats and are driven by electric motors with



The digester was located in front of the old septic tank. The valve house is at the left; the lift station serving the high infiltration area is at the right (background).

Design

overflow arrangements provided in each station in case of power failure.

Before the sewage is pumped at the main station it first passes through a 15-foot-diameter grit chamber to lose its heavier inorganic solids. The chamber uses Infilco equipment to remove the grit automatically. Next, the sewage passes through a Chicago Pump Company Comminutor screening and cutting machine that shreds the solids to reduce clogging of the sewage pumps.

The plant design was based on an average flow of 1.27 mgd, half the peak flow. The sewage entering the plant contains 90 ppm as a five-day BOD, and 110 ppm as suspended solids. The sewage is pumped to two primary settling tanks that provide two hours of detention, based on a 16-hour flow.

The tanks are 60 feet long, 14 feet wide, and have a 10-foot sidewater depth, thus providing them with a surface loading of 840 gallons per square foot per day. Each tank is equipped with Chain Belt sludge-removal equipment.

The effluent from the settling basins enters a meter basin which also serves as a point of chlorination. The plant effluent outfalls through approximately 3,800 feet of 18-inch pipe to the outlet canal from Lake Tohopekaliga. This outfall line also functions as a chlorination-detention chamber and provides 20 minutes of detention at the four-hour peak flow. Chlorination is automatically provided, using a Wallace & Tiernan chlorinator and appurtenances.

Sludge taken from the primary settling tanks goes to a digester, designed on the basis of 2 cubic feet of volume per capita. The tank is 35 feet in diameter, with an 18-foot sidewater depth and a 3-foot hopper at the center. Marlow displacement-type pumps are used for the transfer. The tank has a Pacific Flush Tank floating cover and sludge-gas control mechanism as well.

The digested sludge is dewatered on drying beds, designed on the basis of 0.75 of a square foot per capita served. There are four of these beds, each 30 feet wide and 55 feet long. The plant uses U. S. Pipe and Foundry cast-iron pipe and fittings for the force mains and sludge lines throughout the installation.

The improvement is being financed by the sale of $390,000 in sewer-revenue certificates, carrying an interest rate of 4%. The plant, sewers, and lift stations cost $306,193. Flat-rate sewer-service charges will provide the income to retire these certificates. The monthly charges run as follows:

Dwellings

Single dwellings	$1.75
Multiple dwelling: first unit	1.75
each added unit	.75
Commercial: first water cost	1.75
each added unit	.75

Special

Laundry (less than 75,000 gallons)	6.00
Service stations	5.00
Dry cleaners	5.00
Bars	5.00
Drug stores (with fountain)	5.00
Clubs	2.50
Barber shops and/or beauty parlors	1.75

Schools

High	10.00
Elementary	10.00
School buildings	5.00
Athletic field	1.75

Other

Public buildings	5.00
Churches	2.50
Restaurants	5.00
Hotels (over 20 rooms)	17.50
Trailer parks	20.00

This improvement was completed under the administration of Mayor Frank L. Poffenbaugh. Commissioner John Kelly was in charge for the city on this project. J. C. Gallatin is superintendent of public utilities. The construction-manager type of contract for this project was awarded to the Boyce Company, of Clearwater, Fla. The company is headed by M. R. Boyce, president. Malcolm A. Moye, Jr., was construction superintendent.

Sanitary fills reclaim Brownwood bayou land by special ramp-and-trench technique.

Brownwood revises fill techniques slightly and reaps benefits in better sanitation

How Sanitary Landfill Pays Off For Our Town

By JACK BROAD
City Manager
Brownwood, Texas

THE City of Brownwood, Texas, a community of some 20,000 people, located in the approximate geographical center of the state, has been using the sanitary landfill method of disposing of trash and garbage since May 1945. Our method of building the fill is acknowledged as one of the best, for a city of our size and topography, in the state.

Brownwood was incorporated in 1877. The main business district is about ½ mile southwest of the Pecan bayou, a tributary of the Colorado River; and, within one or two blocks of the courthouse, run two small streams known as Adams Branch and West Slough. Therefore, the terrain of this area is conducive to good landfill practices.

Prior to May 1945, Brownwood used the open dump for trash and garbage disposal. Because of the influx of people to the community as the result of a nearby military installation, refuse disposal became a serious problem. The dump ground was a terrific breeder of rats, flies, and mosquitoes, and was generally a serious health menace and fire hazard.

In May 1945, the city council employed a former county commissioner, Joe Allen, who had some 35 years of experience in road building and operation of heavy machinery. At

Here is a typical example of the way the finished fill looks. The filled land is often worth 40 times its original value.

the same time, the council purchased a small tractor with a "clam" attachment and informed Mr. Allen that he was to start a sanitary landfill where the city could dispose of trash and garbage. Mr. Allen was unfamiliar with the operation of a landfill; he had never even seen one. However, with his knowledge of road building and heavy machinery, he has accomplished wonders in the past nine years.

His first job was to bury the trash that had accumulated throughout the years at the old dump ground. After about one year's experimentation, he developed the technique which is now used in this city.

Very briefly, the method of trenching requires the building of a ramp with earth from the first ditch to be filled. The top of the ramp establishes the grade of the finished fill. We have found that the fill can be raised from 2 feet to 10 feet by this method. Trucks then dump refuse into the ditch, and the tractor "walks" it down, compacting solidly. As the tractor operator covers the compacted refuse, he digs the second ditch, leaving about 2 feet of solid dirt between the ditches.

This procedure continues until the particular area is filled and brought to desired grade. Some dirt must be saved from all the ditches and stockpiled to cover the final ditch. We place a minimum of 18 inches of cover on the fill. Our average ditch is from 75 feet to 100 feet long and 16 feet wide.

The small tractor we originally purchased was traded in, four years later, for a Caterpillar D6 tractor with dozer. Our experience has taught us that we can depend upon the dozer to do an excellent job. We found that the D6, weighing approximately 24,000 pounds, provides sufficient compaction to avoid the settling problem that confronted us as a result of using the lighter tractor.

We have reclaimed approximately 15 acres of land. One tract, which was priced at $350 before filling, sold for $14,000 after the land was filled.

One-Runway Aid

SPONSORS of new airports and improvers of existing airports can expect federal aid for one runway only, according to a restatement of policy by F. B. Lee, administrator of civil aeronautics, of the U. S. Department of Commerce. Exceptions will be made only where the volume of traffic or adverse wind conditions require an additional runway for safety and efficient operation.

In building or improving runways of feeder category airports or larger, the owner must own or acquire a governing interest in an approach area measuring 2,640 feet by 1,000 feet as was recommended by the President's Airport Commission. Exception may be made in special cases where this is "impractical or uneconomical." If landings on the main runway of an airport must be made in crosswinds exceeding 15 miles per hour for more than 5% of the time, the airport may become eligible for a second runway. And even under these conditions, the additional runway will be provided only if economic factors warrant the use of federal funds at this location. When adverse wind conditions do not qualify an airport with an annual traffic volume of more than 75,000 take-offs or landings for a second runway, the airport may qualify provided the layout and use of the additional runway will expedite traffic. Airports requiring two or more runways will be given consideration on a "case by case" basis as each is presented.

Part of the city's rolling stock on display during a Public Works open house.

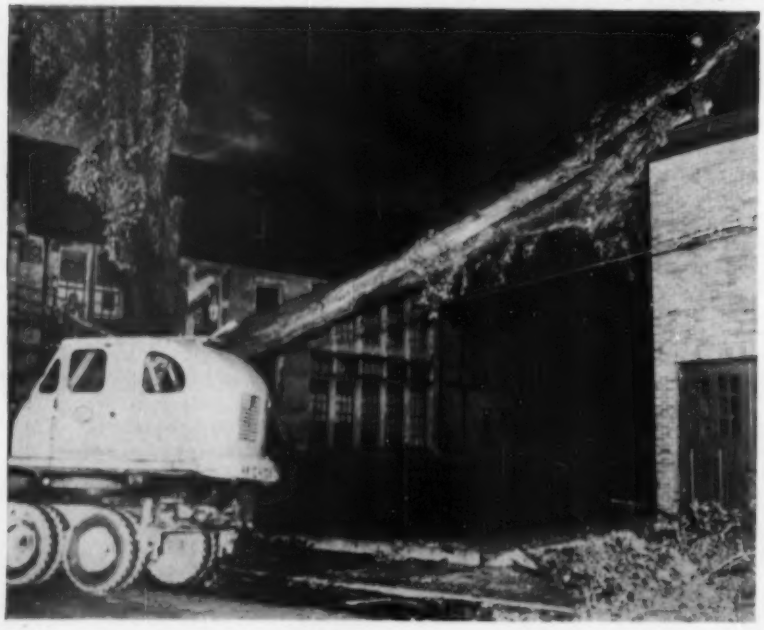
No Specialists Wanted

Lewiston, Maine, gives its public-works equipment multiple duties in a streamlined service program

FIFTEEN years ago, Lewiston, Maine, took the foresighted step of consolidating all its municipal housekeeping activities into a single Board of Public Works. To this organization the city assigned all its municipal services except fire and police protection and direct city administration. Water, sewerage, street construction and maintenance, street cleaning, snow removal, traffic, street lighting, refuse collection and disposal, maintenance of public buildings, all became the Board's responsibility. This Board is headed by five commissioners appointed by the mayor; each is appointed for a term of five years. Their terms are arranged so that one is appointed each year.

The efficiency made possible by such an organization soon became apparent. Under the leadership of Director George Maher, duplicate maintenance crews disappeared; equipment was pooled and assigned for effective use, speeding up and reducing the cost of the city's maintenance work. Repair and maintenance stock was storehoused in an inventory system that keeps a strict account of everything from a supply of bolts to heavy-duty engine parts.

The Michigan truck-mounted crane helps remove a fallen tree during one of the hurricanes of last summer. Unit is assigned a variety of duties throughout the year.



Garage Needed

But to make the system work as it should, Mr. Maher realized the city's need for a good maintenance garage. About six years ago, the city included in its budget sufficient funds to build a garage. The building is 320 feet in length, 80 feet in width, and of truss construction so that there are no supporting posts to obstruct the working area. The building is completely equipped to cope with all city auto and truck repairs, including police cars, city farm trucks, tractors, and fire trucks.

Administrative offices are housed in one end of the building. The bot-

truck-mounted shovel and two Bucyrus-Erie ¾-yard crawler units that

manhole and catch basins is an example. Rather than build these by

tom floor contains the bookkeeping department, which functions under the direction of a chief clerk, and also houses the billing department that processes interdepartmental billing records for stock, gasoline, and other garage services to the various departments. The clerk also computes construction job costs, keeps individual equipment cost records, checks all incoming and outgoing invoices for prices and delivery, and keeps time records and prepares payrolls.

The upper floor contains the offices where City Engineer Henry Aliberti and his assistants draw up plans for contract and other construction work that the city undertakes each season.

Oshkosh puts its Gar Wood crane to work to erect a Christmas tree.

Versatility Accentuated

The key to the successful operation of an all-inclusive department such as this, Director Maher has found, is the flexibility of equipment duties. He has no use for specialized, part-time equipment. From the largest to the smallest, equipment must take a hand at a number of tasks.

For example, snow is a major problem in this northern city. However, it does not become a difficulty if a city equips itself to deal with the snow and develops a well-functioning snow-removal program. The backbone of Lewiston's snow-clearance work is a trio of big, heavy trucks: one an Oshkosh; the other two, FWD's. These carry big V-plows that permit them to push through and open drifts that are typical of the area.

These three trucks also carry Gar Wood cranes so that they function efficiently with repair crews in the warm months. And they are equipped with appropriate hitches so that they can tow a Rogers trailer, and thereby transport crawler tractors, power shovels, and other slow-moving, heavy equipment needed quickly in outlying areas.

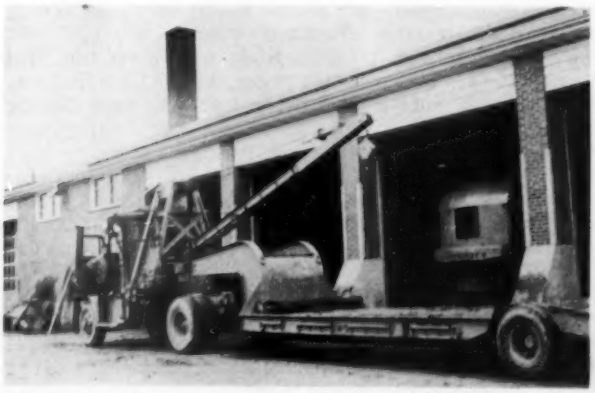
For snow clearance in the downtown areas, the city uses two Barber-Greene loaders with overhead chutes that permit the trucks to be loaded while moving forward with the traffic. This equipment also travels to the city-owned gravel pit to handle stockpiled sand and gravel in the summer for street work.

Steamer Duties

To keep equipment clean, the garage has been supplied with a Malsbary portable steamer that quickly clears away dirt and grease. During the winter, it handily thaws and keeps open culverts and catch basins and certain portions of the area where freezing of sewer pipe may be troublesome.

To sweep the streets, the city uses an Elgin power sweeper that patrols the downtown area and other parts of the city where the streets are equipped with curbs. This same sweeper helps out in street-surfacing work by picking up excess aggregate placed when the Etnyre asphalt distributor, which doubles in snow plowing, makes a surface-treatment application. The public works crews always wind their own brooms for this sweeper, at a cost of $18 each. New broom refills would cost $40.

Even the Bean hydraulic sprayer, used to combat insect pests that plague the beautiful main street trees in Lewiston, has other duties. The sprayer has proved to be particularly



This truck-trailer team gives express service to heavy equipment. A precast collar makes a manhole out of a concrete pipe.

Public Works Director George Maher keeps his office available to both the public and those who work for him.

effective in nipping forest and brush fires. When an alarm of this type comes to the fire department, it is immediately relayed to the Public Works Department and the sprayer is dispatched to help out.

The city has one Michigan ½-yard truck-mounted shovel and two Bucyrus-Erie ¾-yard crawler units that see plenty of year-round duty. The Michigan can be changed from a crane to a trench hoe, power shovel, or drag line. The ¾-yard Bucyrus-Erie can double as shovel or trench hoe, while the remaining Bucyrus-Erie is used at the gravel pit as a power shovel.

The city has a portable 400-amp Hobart electric welder with a 3-kw generator that can be used as an auxiliary light plant and to thaw frozen water pipes in addition to its regular duties.

Refuse Collection

The city operates its refuse-collection service on a task basis, permitting the men to go home when the route is covered. The crews cover the residential areas once a week, the apartment house and multifamily areas twice a week, and the business district daily. To make the collections, the city uses four covered trucks. Three of these are 16- and 18-yard Gar Wood Load Packers, one is a Pak-Mor. The latter has proved particularly useful for alley collection.

Resourcefulness of city crews has been one of the extra dividends that this combined operation has produced. The development of precast manhole and catch basins is an example. Rather than build these by expensive, formed masonry construction, Mr. Maher's crews have constructed conical sections that will fit on a standard 3-foot- or 4-foot-diameter concrete pipe. These sections have been cast in lengths of 2 feet and 4 feet, and make the installation of a manhole or catch basin a task of a few hours instead of a number of days. When the sections were developed, the local concrete pipe manufacturer agreed to cast these so that the city now can purchase them out of stock.

Blast mats that will permit the crews to use dynamite in built-up areas also have been developed by the resourceful work of these crews. To make the mats, they use 7.50 x 20 truck tires, cut in two. These are threaded together with cables that are 12 feet long and two tires wide. The 12-foot length was selected because of its convenience in handling.

Equipment Labels

The city labels all its equipment with distinctive decalcomanias made by Minnesota Mining and Manufacturing Company to quickly identify all public works equipment and assure the public that the city is on the job, keeping all services in good functioning condition.

Experts Analyze Air-Pollution Problems

INDUSTRY received a scolding at the recent International Air Pollution Congress, which was held in New York City and sponsored by the American Society of Mechanical Engineers. Industry's failure is not so much in air-pollution abatement progress as it is in its relations with the community while achieving this progress.

The critic was G. E. Pendray, senior partner of the New York City public relations firm of Pendray & Company. He pointed out that too many industrial managers vigorously deny that their plants contribute pollution to the air despite the smoke, fly-ash, and dust that the public can see belching from the plant chimneys. As public anger grows, the manager and his lawyer often maintain official silence, assuming that further statements will constitute damaging admissions should legal action occur. In the end, the plant must yield to public pressure, but wears a "black eye." The same action, taken earlier and voluntarily, would have made many friends and gained the company credit for public spirit.

Public Support Needed

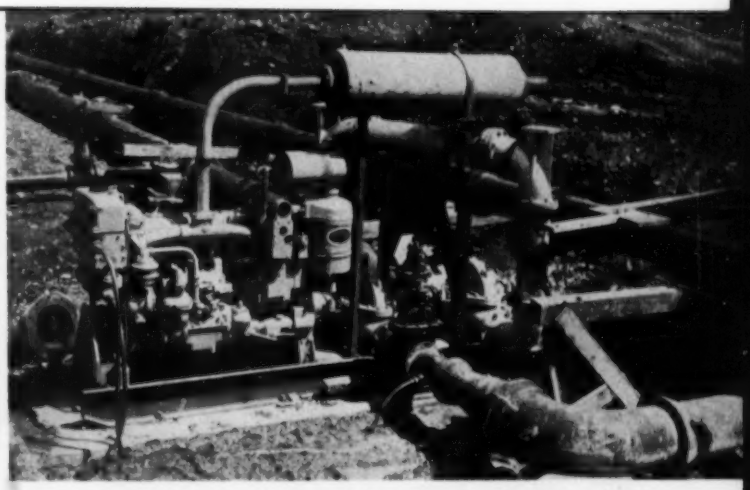
No air-pollution abatement program can be effective unless it has strong public support. This was emphasized by Sir Hugh E. C. Beaver, chairman of the government committee on air pollution in the United Kingdom. For 700 years, he said, committees in England have tried to remove the pollution, only to fail. Finally, public opinion, aroused by the 1952 London smog and its toll of over 4,000 deaths, is calling for drastic steps. People, for the first time, are frightened.

Legislation at the state level is needed in many areas, said Arthur Stern, chief of the Air Pollution Control Program, of the U. S. Department of Health, Education and Welfare. Air pollution is recognized as a problem in nearly 10,000 United States communities, he stated. The most effective way to meet these problems, in many cases, is by a county-wide or multicounty regional administrative system like the one set up in the San Francisco Bay area. Mr. Stern believes it to be poor public policy for federal agencies to give direct assistance and guidance to local communities that have no adequately trained personnel to administer an air-pollution program.

In addition to experts from the United States, the speaker's roster included representatives from Canada, England, France, Italy, The Netherlands, and Portugal.

The Congress was organized under the leadership of Frederick S. Mallette, research manager for ASME and executive secretary of its Committee on Air Pollution Controls. This group published a model smoke-control law which has been widely used as a basis for most municipal ordinances on the subject enacted in recent years.

Water Supply Emergency Conquered



Two of these diesel-powered pumps did yeoman service during the shortage; one at a river intake, the other at the emergency filter plant.

Springfield, Mo., gets a new filter plant in record-breaking time

By RAYMOND E. PINER
Superintendent
Springfield (Mo.) *Water Company*

IT IS remarkable how quickly one can build a water-filter plant when one needs it in a hurry. We did it in only 24 days.

We draw our water from an impounded supply known as McDaniel Lake. This reservoir will be increased by the construction of a new earthfill dam and the creation of Fellows Lake, about 3½ miles upstream. Alvord, Burdick & Howson, Chicago consulting engineers, are preparing the plans for this project. When complete, it should care for our needs for the next 40 years. But this is getting ahead of the story of our new filter plant.

A year ago last summer, the Springfield area suffered the worst drought in its history. The lack of rain caused our impounded supply to drop very fast. Ordinarily, we could count on 3 mgd (million gallons daily) to 5 mgd, drawn from two springs and two wells. During the winter of 1953-54, this supply was cut to about 2 mgd. Our daily pumpage was running from 7.4 to 7.9 mgd.

Late in January 1954, we asked the people to conserve water voluntarily, and they responded by cutting their daily use 25%. However, the reservoir continued to drop and we finally were confronted with a serious water shortage.

Remedy for Emergency

In such an emergency, many problems simplify themselves, particularly when one knows that one has to act quickly. The James River, 4½ miles away, obviously was our best source; a 3-mgd filter plant seemed sufficiently large to meet the emergency demand. Therefore, on March 31, we authorized a local contractor to begin work on the filter plant; on April 1, we began to receive 16-inch and 12-inch cast-iron pipe from the American Cast Iron Pipe Company.

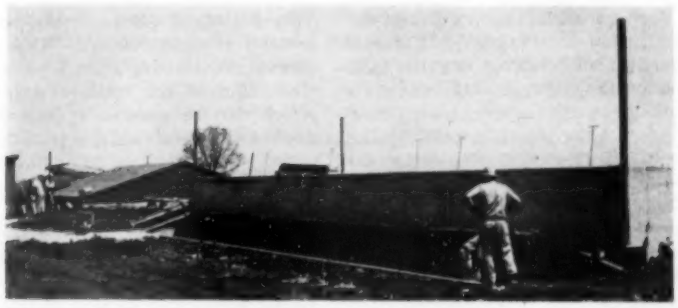
We had an electrically powered Worthington pump at our Kankakee (Ill.) water company plant that could deliver the required 3 mgd, and a similar pump at our Springfield plant. However, we needed about 4½ miles of power line to serve them. With the drought dogging our heels, we didn't have the time to wait until such a line could be built. So we called on the Caterpillar Tractor Company for diesel-engine help. The company delivered two 200-hp diesel units within a week.

Meanwhile, we proceeded to lay the 16-inch and 12-inch mechanical-joint pipeline from the river to our existing distribution system, a distance of 4.8 miles. Finally, on April 25, we started to pump water from the James River into our distribution system.

The treatment plant consists of six 0.5-mgd sand filters with Leopold bottoms and sand from the Northern Sand and Gravel Company, Muscatine, Iowa. From the filters, the water flows into a 90,000-gallon clear well where the high-service pump transfers it into the distribution system.

Our regular treatment plant is northeast of the city, and the temporary plant, southeast. With two elevated tanks and a standpipe with a total capacity of 3,000,000 gallons, we did not experience any difficulty in operation. The temporary plant served until June 28 when the flow in the river became too low. We put it back into operation again for 10 days in October, and 23 days in December. We probably will continue to use it intermittently until Fellows Lake goes into service.

In any case, we overcame the emergency by building a filter plant faster, to the best of our knowledge, than any other in the nation's history.



The structure in the foreground houses the six filters of the 3-mgd plant. In the background (left) is the clear reservoir for storing purified water.

The Denver Coliseum has a stadium-type arena that can be readily adapted to the needs of ice shows, stock shows, and rodeos.

Are You Planning

By T. J. MILLISACK
Commissioner of Supplies
City and County of Denver, Colo.

AN unprecedented amount of municipal auditorium construction is either under way or contemplated in cities and towns throughout the country. The tremendous population surge that has taken place in and around cities coupled with the large amount of public construction that had been deferred from the 1940's to the present has brought many municipalities to the point where new public meeting places are necessary.

Auditorium Planning

A city builds an auditorium or arena or theater-concert hall at a minimum frequency of about once every 40 years. This is not often enough for city officials, local architects, planners, or other citizens to gain the proper experience required for such undertakings. And so each city must turn to the experience of others in order to gain an insight into the "do's" and "don'ts" of auditorium planning. Because we, in Denver, have been through most of the agonies of building and operating a public auditorium, arena, and concert hall, it is perhaps appropriate that some of our observations be put down and made available to others.

Publicly owned theaters, concert halls, arenas, and exhibition halls are often referred to by the all-embracing term—municipal auditoriums. On the other hand, so too are buildings that house a selection of these gathering places under one roof.

In the field of municipal auditorium operation, the *ideal* structure is one that contains within its walls a separate theater, a separate concert or music hall, an arena, an exhibition hall, and several large meeting rooms. In this *ideal* auditorium building, each room or unit can be in use without disturbing the occupancy of the other units, and all units can be used in combination for conventions, trade shows, etc. (It should be mentioned, however, that the technique of housing many different units in one structure requires a very careful handling of the large parking and traffic facilities needed to accommodate large crowds.)

Unless a single purpose unit is economically prohibitive, it is usually unwise to design a large hall to serve two or more separate functions. The extreme example of this would be to try to design a single unit for use as a theater at times and an arena at other times. Invariably the unit proves unsatisfactory for either purpose. In addition only one activity can operate at a time.

It is to some extent possible to combine a theater unit and a concert hall unit, but certain sacrifices are required in each case. It will prove unsatisfactory to build the combined unit with the maximum seating capacity that is appropriate for a concert hall. A compromise is usually necessary. Such a compromise should limit the seating capacity to about 2,200; preferably this should be closer to 2,000. For theater use this would be stretching the "intimate" and acoustical qualities so essential to a stage show, yet would provide seating capacity large enough for the average concert. The proscenium, of course, should be of the size required for concert purposes, which can be masked to the width needed for theatrical purposes.

A Dual Purpose Hall

An exhibition hall may be consolidated with the arena with the design for the arena prevailing, while providing as much floor area as possible with the design. If the entire fa-

Boxing and wrestling, baseball games, and circuses are easily viewed from the balcony-type arena at Denver's Auditorium.

a Municipal Auditorium?

cility is to be used for large conventions, it is almost mandatory that there be at least 100,000 square feet of suitable floor space available within the structure.

Size and Seating Capacity

The seating capacity of an auditorium is usually controversial. The emphasis is usually on large capacity. There are, however, certain factors and limits in determining the workable seating capacity and size of the various units.

A theater unit normally should contain between 1,200 and 1,600 fixed seats, regardless of the size of the community. A smaller theater cannot be operated economically if the city expects to lease it for "road" shows. A theater larger than this capacity sacrifices the "intimate" and acoustical qualities essential to successful stage shows. The width of the proscenium for such a unit should be approximately 36 feet. Other features are usually keyed to these size factors.

The size and seating capacity of a concert hall should be ideally limited to a maximum of 3,000 seats, regardless of the size of the community. It may be smaller, but if much smaller it can be combined with the theater. The proscenium arch of a concert hall should be about 55 feet in width. Most other features of the concert hall are keyed to these size factors.

The size of an arena should be scaled to the size of the community and in proportion to the size of the concert hall. In a broad sense, it should have a fixed seating capacity that is at least double the capacity of the concert hall. The maximum seating capacity of the arena is more difficult to pinpoint. There is often a tendency to scale the maximum size of the arena to a single event that may be traditional. The desire to have a huge seating capacity for this annual event may sacrifice the facility's use for other possible attractions during the year. It is better to size the arena to several events and extend the run of the one colossal event.

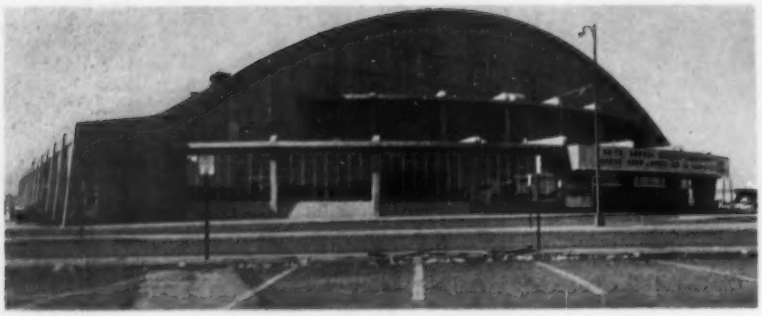
Too large a capacity will find the unit sitting dark much of the time. Psychology is an important factor in a successful attraction. A successful promoter may estimate an event will draw approximately 5,500 paid attendance and therefore will be a financial success. The promoter, however, is reluctant to lease a facility with a capacity of 10,000 or 12,000 because the public reaction will be that the event was *unsuccessful* with the "house" half empty. If possible, the promoter would prefer to stage his event in a facility with a capacity of 5-6,000 and even "turn away" a few hundred admissions. His event, therefore, would be a huge success in the eyes of the public and would insure public interest in a succeeding event.

The size of the exhibition hall usually is confined to the over-all size of the arena. It is often economical to place this exhibition hall on a basement level within the outside perimeter limits of the arena structure.

Meeting rooms should vary in size to house groups of people between 150 to 500. Meeting rooms smaller than these can usually be obtained in hotels.

A Real Need Must Be Answered

Municipal auditorium units should certainly never be approximately the same size as other existing facilities (privately or publicly owned) unless there are extraordinary circumstances. A municipal auditorium should fulfill a need for a facility that is not now existing or which cannot



A view of the facade of the Denver Coliseum. Note parking area in foreground.

be feasibly provided for by private enterprise.

Many things are involved in the decision as to the location of the auditorium. Some are: The geographical center of the community, the center of population of the community, the relation to downtown area, available parking facilities, arterial streets and highways serving the location, public transportation, etc. All are important; no single feature outweighs another in every instance. Usually a decision boils down to a matter of good judgment after considering all factors in each community.

Locating and Financing a Municipal Auditorium

For example, in some communities the geographical center of the community is in a locale highly industrialized. In another community the center of population may be a highly restricted residential area or in an area with inadequate streets. It might be desirable to locate near the downtown area in a city catering to conventions. Parking facilities are important. Off-street parking, for instance, may be near by with sufficient numerical capacity but not equipped to handle the exiting surge of an auditorium.

Under the best circumstances, the most that can be hoped for is that the auditorium may offset its operating expenses. It is virtually out of the question to expect it to amortize the original investment.

There are two general methods of managing the finances of an auditorium. Both methods make a distinction between commercial and community users of the building—with the community users (generally classed as civic, educational, religious, and charitable organizations) paying a smaller charge than commercial users.

The first method recognizes the commercial–community user distinction through the use of a double schedule of rates. The revenues derived according to these rates will generally defray the operating expenses, but the balance of the expenses for building amortization, etc., are openly subsidized by the municipal government.

The second method is to place the management of the auditorium on a separate businesslike basis with one schedue of rates for all users. By means of specific councilmanic appropriations, community users are granted sufficient funds to pay the basic use charges for the auditorium. This system can allow the auditorium to so manage its affairs as to make it appear that the facility is self-supporting, even to the extent of amortizing the investment. However, subsidies are obviously involved as money is taken from one municipal pocket and put into another, accounting-wise.

Almost any method short of the above will force the auditorium to operate at a loss and will create hidden subsidies for some users.

The following is a suggested procedure in the planning and building of a municipal auditorium. The intent of these proposals is to offer an orderly procedure wherein a responsible group has an opportunity to decide what is desirable and suitable before being influenced by design and structure, operating and technical details, and other important matters that should follow:

1. Organize a group of responsible individuals familiar with city government and the community. Charge this group with determining and obtaining the most suitable facility to meet the city's needs.

2. Have this group examine various types of facilities in other comparable communities.

3. Provide this group with data so it can reach conclusions involving all questions previously mentioned and other pertinent features affecting the facility.

4. After formulating these recommendations, such as the types of units, size and seating capacity of each unit, the group should obtain an auditorium consultant's opinion as to its conclusions.

5. It is now time to commission an architect to design preliminary drawings of a structure encompassing the basic features recommended by the citizen group.

6. If this is a "first time" auditorium in the community, it is the time to consider hiring an operating manager in order to include his operating experience and knowledge.

7. During this preliminary period the architect and the manager may suggest ideas that might affect the recommendations of the citizen group.

8. After acceptance of the preliminary plans and drawings, the manager and architect should complete technical details and specifications for the auditorium.

9. A final examination should be made by the citizens' group of the structural plans and specifications to determine if the original desired basic features are effectively incorporated in the structure and other embellishments, equipment, fixtures, etc., relate favorably with the whole.

City and Regional Planning at M.I.T.

A NEW leaflet from Massachusetts Institute of Technology calls attention to the fact that "Courses in City Planning have been required at M.I.T. for all students of architecture since 1922. Starting in 1935, the Institute has offered a program leading to the degree of Master in City Planning—one of the earliest graduate curricula in the country. From the beginning, this advanced degree has been offered to students with a background in engineering and the social sciences as well as architecture. At present, M.I.T. alumni make up the largest alumni group within the membership of the professional planning societies and hold a similarly large proportion of key positions in planning agencies and in planning schools."

This leaflet: "City and Regional Planning at M.I.T.," has paragraphs on expanding professional opportunities, the role of the planner, the M.I.T. planning curriculum, special opportunities, the planning faculty, program requirements, and entrance requirements.

For further information write to Professor Frederick J. Adams, Head, Department of City and Regional Planning, Massachusetts Institute of Technology, Cambridge 39, Mass.

In this file of unfilled purchase orders, an individual folder is allotted to each vendor. A colored sliding signal in the visible margin indicates the first follow-up date.

Iowa City Records Reorganized by Specialists

By PETER F. ROAN
City Manager
Iowa City, Iowa

FILES and records are the very life of a city government office, yet too often they are among the most neglected areas of administrative detail. Here at Iowa City our municipal record-keeping has been reorganized. The job was done not only for my office but also for the city clerk's office, the police department, the city engineer, and the sewage-disposal department.

We didn't feel we had the specialized knowledge to undertake the job, so called in the Business Service Department of Remington Rand. Without interruption of our routine they made their observations and recommended centralizing as many types of records as possible to minimize confusion, and organizing administrative and permanent records for current use and for future reference.

In the offices of both the city manager and the city clerk there were too many separate files in use with related material often separated and identical material sometimes found in two or more places. The cure was a central records room under a records supervisor who would maintain close control over every document by means of a system of charge-out guides.

Tighter Purchasing System

The Business Services study recommended improving our method of processing purchase orders in the city manager's office. The existing procedure was to type out each purchase order in four parts, on receipt of a written requisition, a verbal request, a duplicate sales check, or a statement submitted by the vendor. The original copy was for the vendor, two copies for the signature of the party receiving the material and for the vendor's invoice, and the fourth copy filed by commodity.

The first recommendation was to type purchase orders only from requisitions or written statements. We now send the original to the vendor, and attach a copy to the requisition and file it in a special follow-up folder under "Purchase Orders Unfilled," one for each vendor. A colored sliding signal in the visible margin indicates the first date for follow-up. Overdue orders are spotted at a glance.

History File

One of the two remaining copies of the purchase order is sent to the central records room for filing under "Purchase Order File — Vendors." The fourth copy forms the basis for a Purchase History Record filed by commodity. This file, the heart of the purchasing department, is a Kardex visible record which eliminates digging through blind files. A Kardex system is also employed as a simplified inventory control with margin signaling of replenishment needs.

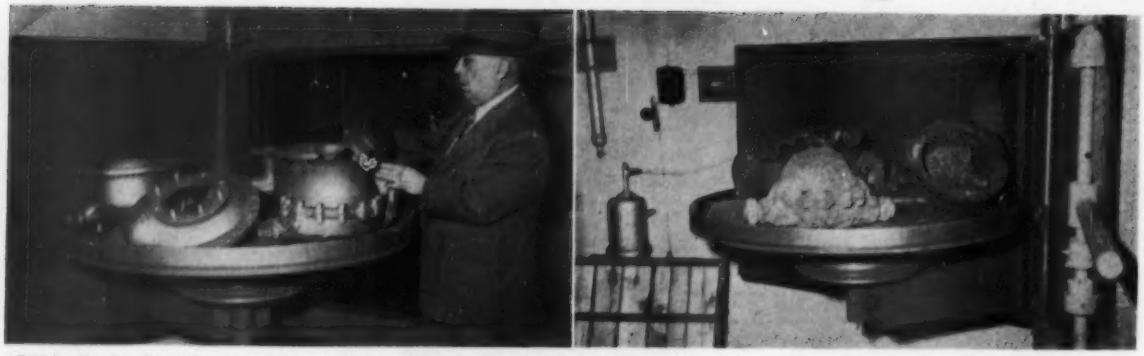
The study revealed that many of the city engineer's records might better be kept in the central records room. The result is that only technical records for immediate reference are kept in the office.

When our police department's fingerprint file was found overcrowded, an additional cabinet and standardized folders and guides were installed.

A Records Retention Committee, including a representative of the city council, the city manager, and the city attorney, was set up to determine which records should be retained indefinitely, which for six years, and which could be destroyed after three, two, or one year's time.

All six-year and permanent records will be microfilmed, and the rolls of film kept in a location separate from the originals. The latter will be destroyed after six years and the films alone retained. A Microdex indexing system locates the filmed replicas when needed.

The reorganized records system, of which I have noted here only a few highlights, has now been in operation long enough for us to be satisfied that the change was a wise one. We are also convinced that a clerical problem of any magnitude deserves the attention of a professional reorganization service.



(Left) M. B. Randle, president of Cities Supply Company, makes a personal inspection of meter parts cleaned by the abrasive-blast method. (Right) This is the way the meter parts looked before they were subjected to the abrasive cleaner.

About Water Meters

CLEANING THEM

CLEANING water meters by the use of abrasive blasts seems to be gaining favor, particularly among those who make a business of cleaning and maintaining meters for a number of municipal water works.

Typical of these is the Cities Supply Company, Inc., of Sumter, S. C. This company serves as a central meter-repair shop for a number of cities in the South Atlantic Coast area, repairing meters and restoring them to virtually new condition. The size of the operation permits the company to stock meter parts and supplies from all companies, thus permitting any small water works to purchase any brand of meter it

Even small gears and splines are put back into tip-top shape without damage when cleaned by abrasive blast.

wishes and not be troubled by maintenance problems.

This company uses the swing-table type of abrasive blast machine, made by American Wheelabrator and Equipment Corporation, of Mishawaka, Ind. The significant feature of this equipment is that it substitutes the centrifugal force of a rotating wheel for the compressed air used by more conventional methods. This eliminates the cost of air equipment and savings in power required for generating the air pressure. The same equipment can be used to clean many other corroded metal parts that are used by cities for general maintenance.

The same type of abrasive-blast principle has been incorporated into smaller machines which may be adapted to meter-repair shops of smaller size. The abrasive blast eliminates the need for air equipment and saves power required for generating air pressure.

The abrasive-blast method of meter cleaning is also being used by the municipal water departments of a number of cities, including Mishawaka, Ind.; Akron, Ohio; Charlotte, N. C.; Greenville, S. C.; and Battle Creek, Mich., among other places.

READING THEM

By J. S. WILLIAMS
Director of Public Works
Bay City, Texas

THE average water user, we unfortunately must recognize, regards his water meter with suspicion, and is convinced that the dial spins like a top day and night. Peculiarly enough, he accepts the accuracy of the gasoline-station meter unhesitatingly, even though the same manufacturer may make both. Probably his acceptance can be explained by the station attendant's fuss over him and the impressive pump and metering equipment standing before him.

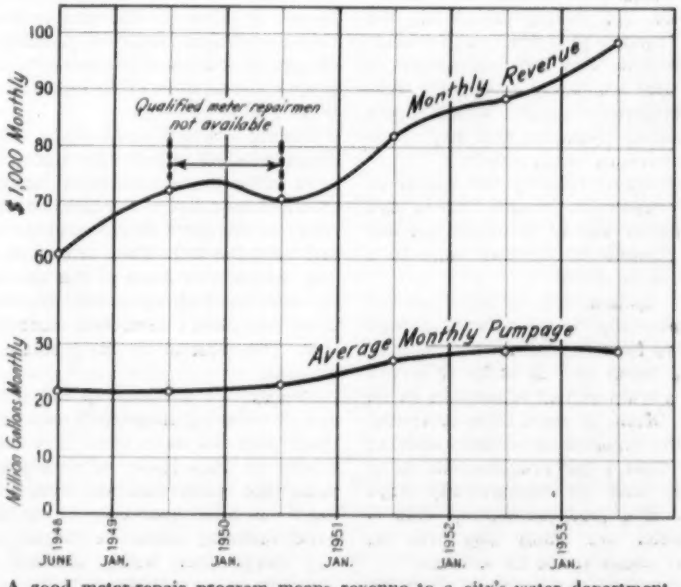
Water meters are mysterious to the layman; they are generally located in a forbidding-looking vault. It is no wonder that he is suspicious. However, our job is to overcome that distrust.

Qualifications of a Meter Reader

Our job can start with the meter reader. In the past, in this area, we have had difficulty retaining the services of qualified meter readers. By qualified, I mean that the reader must be accurate, honest, neat in appearance, a diplomat, familiar with the mechanics of a meter so that he can talk about it intelligently, aware of the system's policies, write a legible hand, and, if employed in a small town, have a good reputation.

Heretofore, meter readers have earned slightly less than equally experienced service foremen; however, this inequity has been or is being corrected. A well-qualified meter reader is just as important to his water system as a qualified teller is to a bank.

Next, let's take up the matter of unauthorized skips in reading the meters. A man is accused of finding a shady tree on a hot summer day, sitting beneath it, and from that van-



A good meter-repair program means revenue to a city's water department. Graph shows Bay City's status while qualified repair men were not available.

Even small gears and splines are put back into tip-top shape without damage when cleaned by abrasive blast.

Texas water-works men get pointers in meter repair and testing at Bay City.

tage point, "reading" all the meters in, say, the southwest section of town. Newspapers in the larger cities enjoy writing stories about this type of meter reading and, consequently, the people in smaller cities assume that their meter readers follow the same practice.

You can discourage this impression quickly enough by making a few spot checks around your distribution system. A good meter reader won't resent this checking, and a poor one has no business in your organization anyway.

Problem of Delayed Readings

In our area, we are troubled with delayed readings caused by long, rainy spells. These periods may vary from three to six weeks and will unbalance the billing schedule. We have found it good practice to rubber-stamp bills with the explanation of why they are so high. Properly written newspaper articles which report the billing procedure also help to explain matters to the public.

Now let us take up the matter of meter repairs in the small town. Are you better served to repair the meters yourself or to send them to a commercial shop?

Any system that is fully metered automatically becomes large enough to have facilities for normal testing. But a small city is lucky if it can keep a truly skilled repairman on its staff. Often, in these little communities, the repair shop is really nothing more than a parts-replacement shop which runs up unmercifully high costs. If a good commercial shop is available, the small city will be money ahead to use its services.

The use of a commercial shop for repairs solves another problem that always is annoying: the variety of brands of meters. If a city restricts its meter purchases to a single company, it can be accused of collusion, even though the accusation is unfair. In any case, it is a good idea to shop around and see what brand of meter is best for your system. Mixing a little know-how with a measure of economy in first cost and repair cost will bring real dollar value to your city. In our particular case, 17 years of experience has shown us that the Badger meter gives us somewhat lower cost per 1,000,000 gallons of water measured. We have seven makes of meters in service. We also use Badger meter-testing equipment.

In our area, sand and harmful minerals in the water, plus general meter abuse are some of the principal causes of trouble. The proper sand trap or settling facilities, possibly a change in the brand of meter, or the proper sizing, all will do much to alleviate such problems.

During World War II, many small cities installed iron-cased meters that gave unfortunate records of service. Other cities simply connected several users to the same service and meter, and split the bill. This, of course, is one reason why some of the smaller systems are looking around for revenue that hasn't developed since the war. The solution to this problem is obvious.

Finally, let us take up the problem of the superintendent's own relations with his superiors. You can't expect to keep lower echelon problems, like meter reading, from arising if you find uncertainty at the top, policy-forming level. A mayor, or city councilman, newly elected, in virtually every case comes to his new job determined to do what is best for his city. This is particularly true in the small city. The average mayor or councilman makes a real sacrifice when he assumes responsibility for the government of his community.

Our job is to help them—to give them information that will make them familiar with their job and the problems that the community faces. A superintendent who agrees with his superiors on the purchase of meters that are not suitable to his system does a disservice to his superiors, his community, and to himself. A superintendent who is bullheaded in his demands for certain improvements, without explaining the need for them, is even more remiss.

It is our job, always, to run our water system so that the mayor, the members of the city council, or any private citizen who wants to can come to us and get enough information to grasp the operating problems.

Water metering as such presents no real problems, but we as individuals can generate them—but we can solve them just as quickly if we set our minds to it.

President's Highway Program Would Spend 37% in Cities

CITIES will get 37% of the proposed $101,000,000,000 to be spent on the nation's highway program if President Eisenhower's program is adopted. The program is based on the findings of the Advisory Committee on a National Highway Program (Clay Committee); the estimated budget was computed by the Bureau of Public Roads.

Apportionment of the preliminary 10-year needs runs as follows:

	Urban	Rural	Total
	(in millions of dollars)		
Interstate	11	12	23
Federal Aid Primary	10	20	30
Federal Aid Secondary	..	15	15
Other	16	17	33
Totals	37	64	101

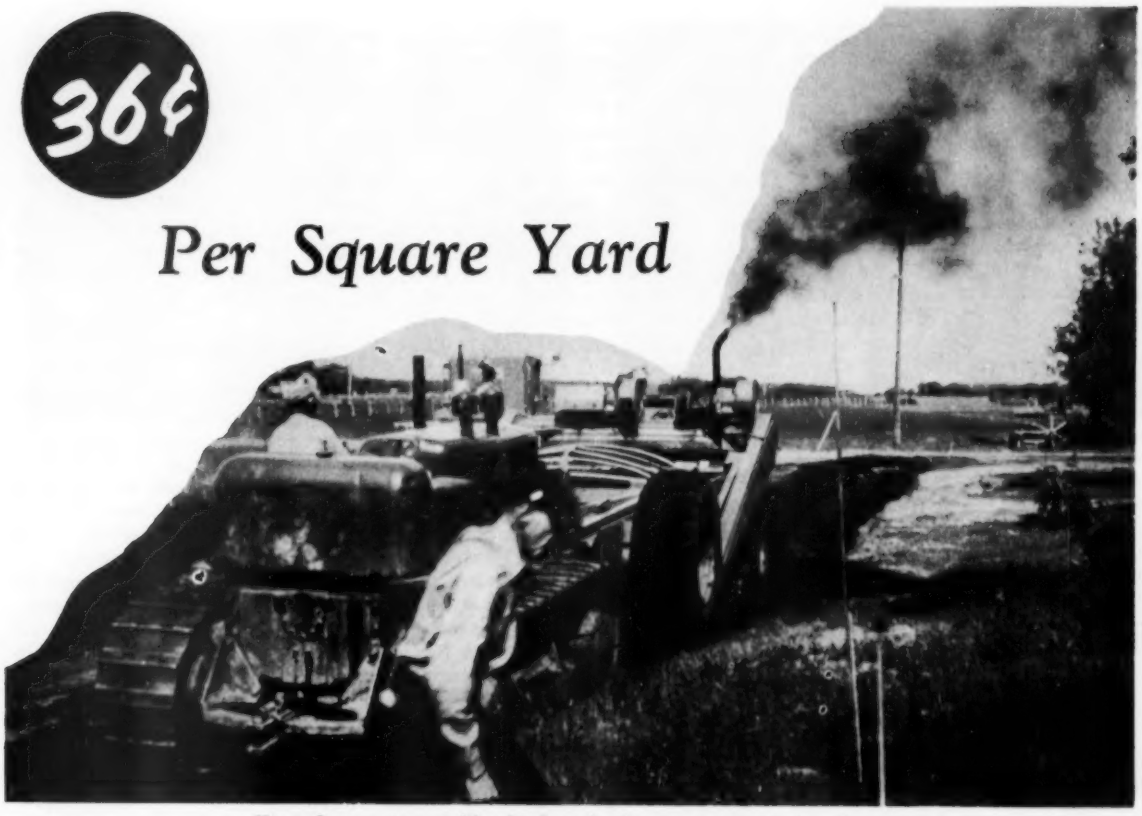
The Governors' Conference and the President's Advisory Committee agree that the federal share of the needed construction program should be about 30% of the total. The President recommended that the program be financed by increasing present gas and diesel-oil taxes, augmented in limited instances by tolls. These funds would be pledged against special bond issues and collected during the useful life of the roads and streets.

Heretofore, meter readers have

Graph shows Bay City's status while qualified repair men were not available.

36¢

Per Square Yard



Heavy-duty equipment like this brought the streets to grade in a hurry.

Monticello, Minn., completes an engineered street-paving program tailored to meet its village budget

By LESTER D. LEE
Hitchcock & Estabrook, Inc.
Consulting Engineers
Minneapolis, Minn.

MONTICELLO, MINN., lies on the banks of the Mississippi River, about 35 miles west of Minneapolis. The village is home for 1,500 people, none of whom liked the condition of their streets.

Despite its size, Monticello is an active little community. Its industrial progress is evidenced by a thrifty cold-storage locker plant and a moderately large creamery. Its public spirit is indicated by the Commercial Club, which spearheaded the street-improvement program, and the village's construction of a $500,000 school that will serve not only the village but a nearby rural area as well.

Like most Midwestern communities, Monticello is built to a gridiron plan. Although this design is somewhat out of favor today, it was very appealing to the orderly minds of the original settlers and not inappropriate, considering the area's flat terrain. Those who founded the village platted the streets in 80-foot widths, all running in north-south and east-west directions with blocks of about 330 feet in length. The state uses two of the streets for state highway routes. In all, there are about 8 miles of streets within the community borders.

But these 8 miles of streets were dusty and an annoyance to the general public. Maintenance had been limited to grading, graveling, and some spray-coats of asphalt which proved ineffective in keeping down the dust.

A few years ago, the village officials decided that a more orderly approach to this problem was mandatory. As a result, our firm was retained to survey the streets and fix proper grades that would insure good drainage and ultimately good surfacing. This survey, when it was completed, was adopted as official and placed on record.

The council then asked for preliminary estimates of cost covering a minimum installation of storm sewers; also, for estimates of the cost of grading, base stabilization, and bituminous surfacing. As a matter of economy, they directed that curb and gutter be excluded. We reported that work of this nature could be completed for an estimated $60,000.

Program Established

With this estimate before them, the council members took a vote early in 1954 to determine whether the village should issue bonds to finance the improvement. The bond issue was

approved by a substantial majority. The State Highway Department came to the assistance of the village, at this point, by agreeing to stand about 25% of the cost of constructing storm sewers, including engineering costs, in recognition of the importance of these sewers to the arterial highways passing through the community. In all, the work involved about 160,000 square yards of street surfacing, which included the necessary grading, and about 2 miles of storm sewer.

The first step was to bring the streets to an established grade for a roadway width of 36 feet. This width allowed a parking lane on either side of the street and one 10-foot traffic lane in each direction. The contractor used three 12-yard, self-propelled LeTourneau Tournapull units to do the grading, as well as a Caterpillar D-7 bulldozer and two Caterpillar No. 12 motor graders. Most of the excavated material was hauled to a nearby park and some was used to reclaim swampy river land.

Subgrade Compaction

Specifications called for the subgrade to be compacted to a uniform density. To do this, the contractor first used a Le Tourneau sheep's-foot roller, then followed it with a Bros rubber-tired roller, and finished with an Austin 10-ton tandem steel roller. Water was used to aid compaction, bringing the moisture content to an optimum figure for good stability.

Next, a Littleford 1,500-gallon pressure distributor applied an SC-1 cutback asphalt at the rate of 0.2 of a gallon per square yard as a prime coat. This was permitted to penetrate for about two weeks, although traffic was admitted to the street shortly after its application. The asphalt penetrated the base to a depth of about ½ inch.

Surfacing

For surfacing, we specified screened gravel with SC-2 cutback asphalt. We asked for enough gravel, placed in a windrow, to produce a 2-inch-thick surface. The asphalt, equivalent to 1 gallon per square yard was then placed on the windrow and blended with the gravel by a Seaman Road Mixer. A grader then bladed the mixture into place, a rubber-tired roller compacted, and a 10-ton steel-tired tandem roller finished the job. The contractor was required to form shallow gutters of the same bituminous material on either side of the roadway. Total cost of the street work, including the grading, was about $57,000, or 36 cents per square yard. Grading alone amounted to about $20,000. The appearance of the work is similar to a first quality bituminous surface. With proper maintenance, it will give indefinite service since these are residential streets subject to light traffic. The village imposes a 3-ton axle load limit during the spring thaw.

Financing

To finance the improvement, the village has assessed 20% of the cost against abutting property and is paying the remainder by general property taxes. Bonds run for 10 years and carry an interest rate of about 2½%. A special assessment of 60 cents per front foot of property was levied; the charge was made only on the short side of corner property. Thus, a person owning a 50-foot lot was assessed $30, payable either in cash or in installments over a period of 10 years and at an interest rate of 5%.

The supervision of the work was the responsibility of our firm. Leonard E. Nelson acted as resident engineer in charge of the project.

"Quizzing You Jersey Planners"

UNDER this heading the Division of Planning and Development of the New Jersey Department of Conservation and Economic Development, 422 State House Annex, Trenton, N. J., has inaugurated in its February 1955 bulletin, *Jersey Plans*, an interesting quiz feature. Here are three of the eight questions asked, and their answers as given on another page of that bulletin.

1. Q. The Mayor of Hometown City is an *ex officio* member of the Planning Board. What does this mean?

A. By virtue of his official office of Mayor, he is automatically a member of the planning board. His term on the planning board corresponds to his term as mayor. He has a right to vote, and is eligible for the rights of any other members except that as Mayor he may not serve as Chairman of the Planning Board (N. J. R. S. 40:55—1.4.—1.5). Ex-officio—"By virtue of his office"—Bouvier's Law Dictionary, 148 p. 374 Banks—Baldwin Law Publishing Company.

2. Q. Contractor Jones purchases an old farm which had been platted into 20 x 100 foot lots in 1918 and had been recorded in the Office of the County Clerk. The Hometown City Zoning Ordinance specifies 75-foot lots. Contractor Jones plans to build Cape Codders on 80-foot lots. The Hometown City building inspector refuses to issue building permits because Contractor Jones has not secured subdivision plat approval from the Planning Board. He declares that this is not necessary because: (a) he is complying with the terms of the zoning ordinance, and (b) the subdivision plat has already been on file (and on the tax books) for 36 years. The disagreement is quickly settled. Why and how?

A. Contractor Jones took his plat to the Planning Board. The Planning Board cited the Fairlawn resubdivision case (Superior Court of N. J., Law Division, Bergen Co., Docket No. L 9837—53) which stated: "Subdivision also includes resubdivision. Under the circumstances here presented it must be held that plaintiff abandoned the subdivision. Hence his action is amenable to the planning board." (See Memorandum No. 2 of State Planning Section, Oct. 18, 1954.)

3. Q. Hometown City fathers are requested to amend the zoning ordinance changing an area zoned for residential use to business so that a neighborhood shopping center can be constructed. This area adjoins the municipal boundary; the development would bring in desirable ratables, and adjoining property owners in Hometown City don't object. The change is approved by the Planning Board and adopted by the governing body. Adjoining municipalities feel that this development would be detrimental to their contiguous areas and would not be in harmony with their zoning. They bring court action to have the change declared invalid. Do they have a right to bring suit? How will the court decide?

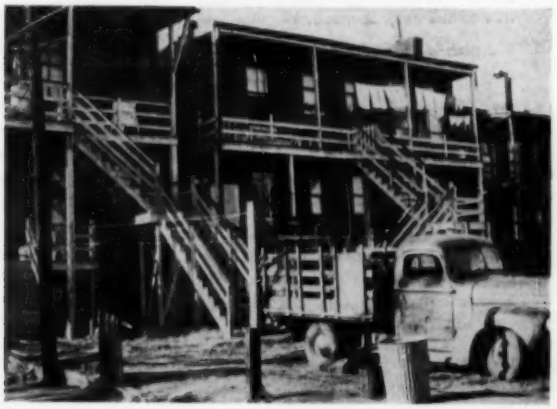
A. In the case BOROUGH OF CRESSKILL et al v. BOROUGH OF DUMONT, Supreme Court of New Jersey, April 1954, 104 A. (2d) 441, a case very similar in circumstances to the one posed in the question was decided. The court held that regional considerations were not given to the case, that this rezoning would be injurious to adjacent municipalities, that it was spot zoning and for these reasons was held illegal.

planners provide a plan for rehabilita-

most 25% in both neighborhoods

be made to determine the actual im-

Within rehabilitation areas, the Housing Rehabilitation Program aims to arrest and reverse downward trend of substantial housing, as above, and insure neighborhood stability.



Slum tendency is even more evident in this rear-view photograph of the property at left. A few like this in a block start a plummeting spiral of all nearby property values.

Enforcement of Housing Standards in St. Louis

By MONROE F. BREWER
Chief Engineer
Housing Rehabilitation Project
St. Louis, Mo.

ST. LOUIS has begun enforcement of its Minimum Housing Standards Ordinance and other laws related to occupied housing as part of a broad program of neighborhood rehabilitation. Eight inspectors from the Division of Building and Inspection of the Department of Public Safety are working on a house-to-house basis in two pilot areas covering about 80 city blocks. The combined area contains approximately 1,700 structures with 4,000 dwelling units, and each inspector will complete between six and ten dwelling units per day. Initial inspections of all houses in the area, it is estimated, will take from six to eight months.

Program Has Broad Base

Housing law enforcement, however, is only one phase of an over-all plan for long-range neighborhood rehabilitation. The program is broad in its approach to all aspects of the problem, and includes not only repairs to houses, but improvement of the neighborhood itself by providing adequate parks, playgrounds, schools, off-street parking, elimination of traffic hazards, and removal of any condition that might be a poor influence on the neighborhood.

The program is not intended to function in slum areas where the housing is in such poor condition that rehabilitation would be economically unsound. These areas will be served by redevelopment corporations and public housing. The Rehabilitation Program is aimed at preventing blighted areas from becoming slums.

Emphasis on Cooperation with Residents

The emphasis is on development of a real desire in the residents to comply voluntarily with the housing laws and to improve their homes, yards, drives, garages, and fences to a point which will be far above the bare minimum requirements of the law. For the past year the city has been working with neighborhood councils in each pilot area to show that the citizens and the city, working together, can make their neighborhoods better places in which to live. The basis for cooperation is this: The citizens are asked to spend money to improve their property, so the city wants the residents to determine what the city can and should do to improve the neighborhood. Thus, the city will have to put some money into the area where the residents are spending their money for improvements. It is hoped that in this way a sense of neighborhood interest and pride will be secured to make the results permanent.

The pilot area selection was determined by a housing survey completed in 1953. The survey which used the American Public Health Association appraisal standards, was required by the Minimum Housing Standards Ordinance passed in 1948. Detailed information that could be used in selecting neighborhoods for rehabilitation was obtained. Actual appraisals of 15,000 structures and 36,000 dwelling units were made as a 20% sample of about 60% of all dwelling units in the city. It covered 2,518 census blocks comprising 56 neighborhoods. About 27% of the city's dwelling units were found to be in need of rehabilitation. The results of this survey are published in a book titled *Let's Look at Housing.**

The project has four main steps:

1. **On the basis of the survey data, neighborhoods are selected for the pilot projects.**
2. **Through a neighborhood organization, the pilot area residents and the city**

* For a description of this report, see "St. Louis Will Also Rehabilitate Local Neighborhoods," THE AMERICAN CITY, December 1953, page 108.

planners provide a plan for rehabilitation of the neighborhood.

3. The plan is applied through the neighborhood organization and city officials.
4. Inspections are made for violations of the Minimum Housing Standards Ordinance and the enforcement provisions of the law are applied to owners who do not comply voluntarily.

Some points considered in the selection of the initial areas were the physical environment of the neighborhood, the type of housing, and a high percentage of ownership. The neighborhood also had to be a self-contained unit with its own shopping center, schools, and some park and playground facilities. Consideration was also given to the amount of improvement that might be shown by the change in physical appearance of the neighborhood after the combined voluntary, law enforcement, and environmental rehabilitation program was completed.

At the neighborhood council meetings, to which all existing neighborhood organizations were invited, committees were formed to study property improvement, playgrounds and recreation, traffic safety, zoning, off-street parking, and publicity. Committee members talked with the residents and among themselves to get some ideas for improvements. The findings of these committees are then referred to the City Plan Commission so that a useable plan might be worked out.

In the meantime the neighborhood residents began doing things voluntarily. Repair work was started, rubbish and garbage accumulations were reported and corrected, zoning violations were noted and brought up before the Council. Anything that might be done immediately such as weed control, yard cleanup, or litter removal was acted upon, and a program to create enthusiasm for a clean, well-kept neighborhood was formed.

Public Opinion Poll

To acquaint the neighborhood residents with the program and obtain some information that might be useful in planning, the inspectors conducted a public opinion poll in which 50% of the residents of both areas were interviewed. They asked opinions on neighborhood shopping, parks, recreation facilities, traffic hazards, city services, and many other things. They also asked what improvements the residents thought the neighborhood needed and if they would be willing to join a neighborhood improvement association. Almost 25% in both neighborhoods said they would join such an organization.

This gave the inspectors an opportunity to contact the residents personally and to explain the over-all program. Before enforcement of the housing laws began the people learned that the city also had responsibilities in the program. Most housewives, of course, told their neighbors. In this way almost everyone in the neighborhood heard about the program.

After inspections began in November of 1954, each resident of the pilot area received a letter from Mayor Raymond R. Tucker, telling about the rehabilitation program, and listing some of the main requirements of the law. All were asked to cooperate with the inspectors and to join in the community program.

The housing inspectors, who have been specially trained for their jobs, will enforce not only the Minimum Housing Standards Ordinance, but all laws related to occupied housing, such as zoning, garbage and rubbish disposal, rat infestation and rat stoppage, and will report any other suspected violations to the proper city departments. The Minimum Housing Standards Ordinance provides specifications for existing housing, regulating plumbing, heating, fresh air, window area, artificial lighting, overcrowding, repair, and general sanitation. It also prohibits outside toilets, and any new conversion of basements to living quarters. Most of the inspectors have worked in the APHA appraisal of housing which preceded the enforcement and have been trained in building safety, public health, and all other aspects that pertain to residential housing.

In the first two areas the men will also make an APHA appraisal of each structure at the same time they make their inspections. After the area has been inspected and compliance secured, another APHA appraisal will be made to determine the actual improvement of housing conditions according to a reliable measuring stick.

As the inspectors' reports are received, the information is put on punch cards for easy tabulation, and the violation notices are sent to owners and tenants. The owner has the right to appeal the decision on violations to the Board of Building Appeals within 30 days. After reinspection the abatements of violations are entered on the punch cards so an exact record may be kept and readily referred to. Those who do not comply within a reasonable time will be referred to the courts for legal action.

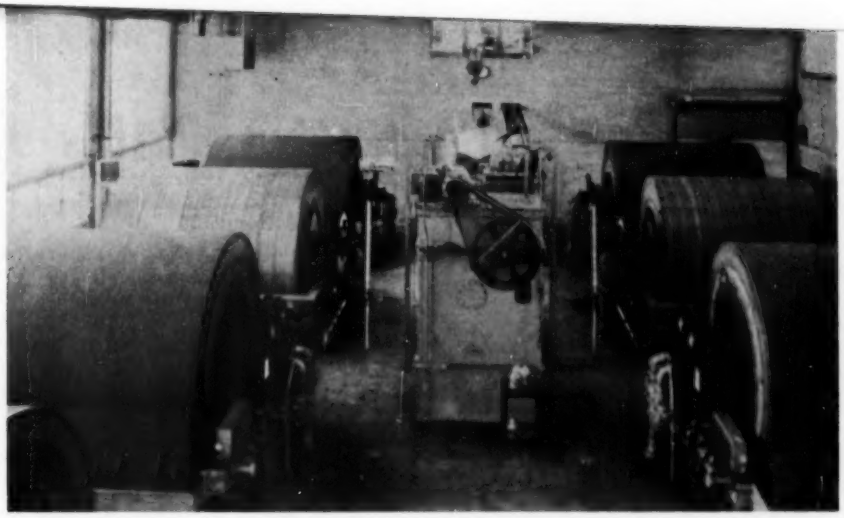
The quality of the housing encountered so far has run from one structure with a high of twenty violations to houses with no violations at all. In some cases the inspectors make recommendations for maintenance or repair that is desirable but not required by law. If no violations are found and no recommendations are necessary, a letter is sent complimenting the owner on the care he has taken of his premises, and encouraging him to continue to support the neighborhood program.

Structure and Organization

The Housing Rehabilitation Project is under the Division of Building and Inspection. The budget was $60,000 last year. It is hoped that this budget will be increased for next year. Three city agencies are cooperating to carry out the program — the Health Division, the City Plan Commission, and the Division of Building and Inspection. These three agencies work together in planning all phases of the rehabilitation of the areas and function as the Rehabilitation Coordinating Committee. In this committee, working with the Mayor's representatives, the problems and plans for each neighborhood are worked out, and coordination of all city agencies involved is obtained. Officials of the three agencies attend neighborhood council meetings to answer questions the members might have; to give advice, and make suggestions. In this way there is direct contact between the city and area residents.

After inspection of all housing in the two pilot areas is completed, two new areas will be selected. It is intended in this manner to make definite, permanent improvements in an area and then maintain it in its improved condition. Rehabilitation will become a permanent part of the neighborhood's character. Eventually all neighborhoods in the city, which are in need of rehabilitation, will be serviced under this program.

The Minneapolis-St. Paul Sanitary District discovers . . .



The Minneapolis-St. Paul vacuum filter installation, showing six of the eight filters.

How to Cut Sewage-Treatment Costs

THE Minneapolis–St. Paul Sanitary District expects to reduce operating costs during the next year by using carbide lime slurry, normally an industrial waste product, as a conditioner for the sludge dewatered in the plant's vacuum filters.

This plant is designed to receive an average daily flow of 134 mgd (million gallons daily), although certain of its appurtenances, such as grit chambers, settling tanks, and channels can receive and treat as much as 610 mgd. It is the nation's largest plant to provide chemical precipitation. However, it provides primary settling only, except during periods of extremely low flow in the river.

The plant does not digest the sludge. Instead, it dewaters the sludge directly on eight Oliver vacuum filters, each with an effective area of 500 square feet and a capacity of 30 tons of dry solids daily. The solids are then incinerated in four Nichols multiple-hearth units, each rated at 175 tons of wet or 55 tons of dry solids per day.

To condition the sludge prior to vacuum filtering, the operators first pump it to concentration tanks and keep it there for one day. This increases the solids concentration from 7.25% to 8.18%. In addition, these tanks serve to level off variations in solids content caused by rapid changes in sludge characteristics.

Switch to Ferric Sulphate

The chemicals used for sludge conditioning are generally ferric sulphate, fed at an average dosage of 1.14% of the weight of the dry-sludge solids, and lime at an average dosage of 2.9% on a calcium oxide basis. Most consider ferric chloride better than ferric sulphate for this sludge conditioning task. However, chemical shortages forced the plant to change to ferric sulphate in 1947. This is an entirely different chemical; it is dry and granular and may be shipped in bulk, while ferric chloride is delivered in tank cars.

During the past eight years, the staff has become so proficient in the use of ferric sulphate that chemical dosages are now lower than they were when the ferric chloride was available. From 1939 to 1946, the dosage averaged 1.37% of ferric chloride. From 1947 to 1953, when ferric sulphate was used, the average dosage was only 1.11%, expressed as ferric chloride.

This reduction was all the more impressive in view of the actual increase in volatile organic matter in the sludge. For example, during 1942 to 1946, the volatile solids averaged 65.2%. From 1949 to 1951, these solids averaged 68.7%. The ferric sulphate used is known as Ferri-Floc, and is produced by the Tennessee Corporation.

The decision to use carbide slurry instead of quicklime was another chemical handling development resulting from careful study by the operating staff. Its successful use elsewhere prompted the investigation and subsequent adoption of the chemical. It required material and equipment to handle and feed the slurry.

The carbide lime slurry probably will be introduced gradually into the plant, and will not supplant the quicklime completely during the first year. The District has a contract extending from January 1954 to May 1955 with the Air Reduction Sales Company which supplies the slurry from its Minneapolis plant at a price ranging from $8.74 per ton of dry carbide lime for the 25% slurry to $7.60 for the 30% slurry. The delivered price of CaO has averaged $12 per ton, or about two-thirds the price of quicklime.

The vacuum filters receiving the sludge have an average filter-cloth life of 430 hours, and of recent years have been dewatering the sludge at the rate of 3.32 pounds per square foot per hour, or 0.32 of a pound per square foot of filter area per revolution. The filters have been washed at least once each hour for at least one revolution of the drum, and may be washed more often under difficult filtering conditions. Wash-water pressures average from 50 to 70 pounds.

The filter device used in the first 16 years of operation was an 8-ounce Canton flannel. In November of last year, the operators switched to a 32-mesh Saran plastic cloth-screen. Kerwin L. Mick, chief engineer and superintendent, reports that this permits drastic cuts in chemical dosages, possibly as much as half.

Municipal Public Relations

The City Tells Its Story

Edited by PAN DODD WHEELER
Executive Director, Government Public Relations Association

A "Do-it-Yourself" Information Campaign Wins Approval for Glencoe Bond Issue

"DO-IT-YOURSELF" is a current American trend. This is the story of a "do-it-yourself" campaign on the part of an ingenious citizens' committee and an equally ingenious village administration in Glencoe, Ill. (population just under 9,000). Results of the campaign will be two new municipal facilities—a village hall and a home for service vehicles, to be built this summer—and the better services these facilities will make possible.

The campaign, to help people make up their minds to vote for a $975,000 bond issue to finance the cost of both buildings, brought 35% of the voters to the polls, a big turnout for a purely local issue. The voters said "yes" to the proposals by a majority of more than two-to-one. The effort was directed by a 47-man citizens' committee appointed and backed by village officials. This group, working intelligently with sound facts and using nearly every media of education-information available to it, informed, persuaded, and won.

While members of the Citizens' Information Committee (CIC) were not professional "communicators," but what Village Manager Robert B. Morris describes as a "cross-section of the community," CIC did include some persons with professional know-how in the information field. One of these was a publisher who did the professional layout which characterized the multicolored brochure, "Your Municipal Building," issued by the Committee. Cost of the 8½-inch by 11-inch, eight-page brochure was just $970. As Manager Morris points out, the "cost would have been much more had not this man donated his time in handling design and layout of the brochure."

Facts Came First

The brochure was but one campaign tool of the CIC. Its work began where all good information campaigns begin: with the gathering of facts. The Committee asked village officials to answer 13 questions raised by citizens about the proposed buildings and the bond issue. These included: Did the Village Board take bids from various architects before retaining the architect who designed the buildings? Why did the Village Board select Georgian architecture for the proposed municipal buildings? Why doesn't the village enlarge its sewer system instead of building new municipal structures?

The Village Manager provided clear-cut answers: "The Board decided that the building should harmonize with the architecture of the public library" inasmuch as the Library and the Municipal Building are to be located on the same tract of land. The Board did not take bids to select an architect—it is "not a practice among architects to compete on a bid basis for projects such as this." The architect was retained because he had done several "successful" jobs for the village previously.

As for the sewer system expansion, Manager Morris said that an engineering survey indicated that those needs applied to only about 10% of the homes in Glencoe. While the Board recognized sewer needs, it believes, Mr. Morris replied, "that the number one need of the village is the need for more adequate police and fire quarters, for public works, water, and general village building facilities. Every home in Glencoe is dangerously affected by the inadequacies of our police and fire facilities . . . [which] are long outdated and are obsolete in virtually every respect."

The Appeal was Concentrated

From the body of facts, CIC selected those on which it would build the campaign. The test was: Which of these facts will alert and stimulate our people? Which will produce "yes" votes? CIC developed these questions and brief answers to them: Why not modernize the present city hall? Wouldn't a smaller building than the one planned serve our real needs? How much of the new building is needed for police and fire departments? How about using cheap construction in the new building? (The answer to this was that "plans call for relatively cheap construction, square building, no waste space, everything functional . . . without doing the unthinkable and going to factory-type construction, this is about as cheaply as the job can be done.") Are there any savings to be made by adopting this new building program? Why not build one of the buildings now, the other later? The citizen group answered literally hundreds of questions during the campaign—including individual letters whose writers received individual replies—but CIC concentrated on these major ideas in publications and talks.

CIC Steps Up Its Effort

While preliminary work was done by village officers and by citizens for several months before the referendum date, December 14, the CIC effort was carried on for the three weeks immediately preceding that date. Open houses, with conducted tours of existing facilities, were held on each of the three Saturdays before the referendum and villagers were urged to visit city hall and the fire and police quarters at any time. CIC recognized that the best selling job is done when people can "see for themselves" that a need exists. To help them see

this, 120 photographs, charts, posters, and graphs showing existing facilities and planned improvements were displayed in the council chambers during this period.

CIC put out posters urging citizens to inspect Village buildings and to "Vote Yes for the Glencoe Municipal Services Building Program on December 14." These posters were displayed in store windows, train stations, and on posts throughout the business district.

Many Media Used

The Glencoe newspaper headlined and editorialized on the proposed buildings and bond issues, carrying materials which spearheaded the information effort. Newspaper stories about the citizen meeting, held December 6 in one of the schools, helped get 250 persons to that meeting. CIC invited all householders via a "Dear Citizen" letter, which also summarized the problem to be settled in the referendum. The Committee issued special invitations to members of all village boards. Upon entering the meeting room, each citizen was given a card on which to write out his questions about the building proposals. Trustees, other village officials, and CIC members answered 50 such questions during the evening. The League of Women Voters joined CIC in arranging the town meeting.

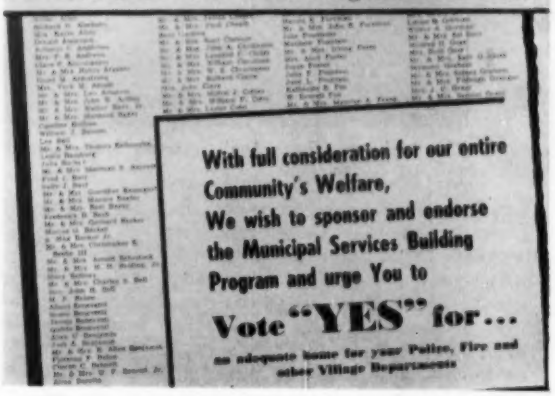
Fact sheets, containing the 13 key questions and answers already mentioned, were distributed to all CIC members and others who were willing to make formal talks or to discuss the issues in informal groups. Endorsements to the plans were obtained from 1,000 citizens—and these names were listed in a full-page newspaper advertisement stating "1,000 of your neighbors say YES." The ad was reprinted and sent as a self-mailer to all householders.

Three days before the referendum, CIC telephone teams went into action. Manager Morris says that about 40% of the eligible voters in Glencoe were contacted, individually, in this way and were urged to vote "yes." The day before the election, CIC sent out a final "statement of information about the proposed municipal building program" which put the Village case into one summary page. It concluded: "alternative plans were studied . . . the program, as submitted to the voters on Tuesday, December 14, represents the best plan that resulted from a study of the possible alternatives." Also on the day before the election, all the school children in Glencoe carried home a "reminder" to their parents to "please vote tomorrow." The one-page mimeographed folder said only, "Glencoe voters tomorrow will decide whether our village should provide adequate municipal buildings for better police and fire protection, increased safety, and improved services." The folder also listed poll locations and hours.

Results of the Campaign

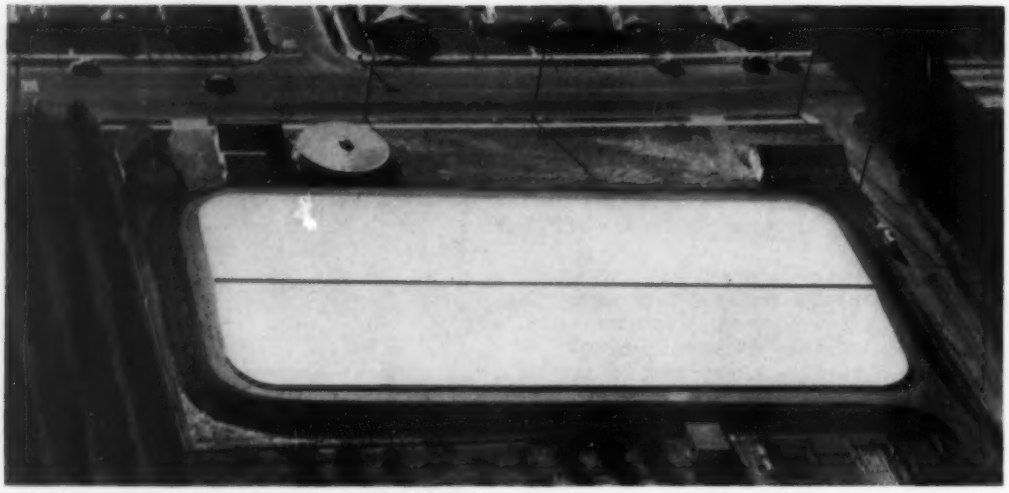
Results of the Citizens' Information Committee campaign is reported by Village Manager Morris like this: "The municipal building proposition carried by a 71% favorable vote (1,179 yes, 476 no) and the municipal garage by a 69% favorable vote (1,131 yes, 509 no). We were happy that the voting turn out was as large as it was." Mr. Morris credits CIC's campaign—a real "do-it-yourself" effort—and the backing of the Village officials and many other groups, with success of the proposals. "I am sure," he writes, "that the information effort and the brochure contributed materially to the favorable vote. We hope to begin construction on these two buildings this summer."

Campaign Tools:


With full consideration for our entire Community's Welfare,
We wish to sponsor and endorse the Municipal Services Building Program and urge You to
Vote "YES" for...
an adequate home for your Police, Fire and other Village Departments

Citizen endorsements, letters, posters, newspaper editorials and advertisements, and a multicolored, fact-giving brochure, the attractive cover of which is reproduced below, in combination with well-directed, concentrated effort.

If you vote YES on December 14
Service Building for Glencoe's Trucks and Tractors, Street Sweeper, Road Roller.
Proposed Municipal Building Program



This is the way Santa Ana's reservoir looks from the air. The cover looks solid and promises to be trouble-free.

Aluminum-Covered Reservoir

Santa Ana, Calif., tries something new in water-reservoir protection

By HUGH FOREMAN, JR.
Director of Public Works
Santa Ana, Calif.

ONE receipt for avoiding water-works trouble that is gaining popularity is "keep your reservoir covered." It is as sound as our grandfathers' advice to "keep your shirt on." But like all good advice, it is often hard to follow. The public understandably asks us to keep costs down. And covers, particularly for large reservoirs, can run into a lot of money.

Why Use Covers?

The water-works man has many good reasons for covers: to prevent pollution; to eliminate the temptation to small boys to burrow beneath fences, climb over walls and through barricades to use a drinking-water reservoir for a swimming pool; to keep the water in darkness to prevent algae growth that makes the water taste like a patent medicine.

In addition, th's modern age of nuclear fission offers another reason. As we understand it, the fall-out of radio-active particles from the atmosphere is getting to be a wondrously interesting problem. A bomb detonated in Nevada has produced detectable radio-active pollution in Massachusetts. The Prime Minister of Great Britain has asked for the cessation of bomb tests because they threaten to produce atmospheric problems all over the world. The possibility of radio-active pollution of our water supply isn't pretty; a good cover over the reservoir is probably the simplest way of providing protection.

These covers are so costly and troublesome that when we built our new 6,000,000-gallon reservoir we almost rejected the idea of providing a cover. We built the reservoir inexpensively by using earth excavated from the center to build the side walls. The top of the embankment is 9 feet above ground-level, and the bottom of the reservoir is 10 feet below. This allows 18 feet of water depth and 1 foot of freeboard. The floors and walls were lined with 4 inches of concrete gunited into place and reinforced with welded-wire fabric.

We Decide to Use a Cover

The reservoir would have proved satisfactory from a hydraulic standpoint without the cover, if not for our orange groves. The added supply strengthened the entire distribution system, supplementing an 800,000-gallon covered reservoir and a 1,000,000-gallon elevated tank. But, in Santa Ana, we have steel-muscled, limber-armed lads who can pitch an orange a country mile. A cover for the big

reservoir certainly appeared mandatory.

After a thorough analysis of all possibilities, we decided to depart from conventional patterns and supply an aluminum cover. The advantages were promising: since aluminum is corrosion resistant, we could eliminate the cost of painting; since it is heat-reflecting, we would be able to keep the water cool; since it is light, we could support the roof with an inexpensive structure. The cost was reasonable—less than $48,000.

Cover Details

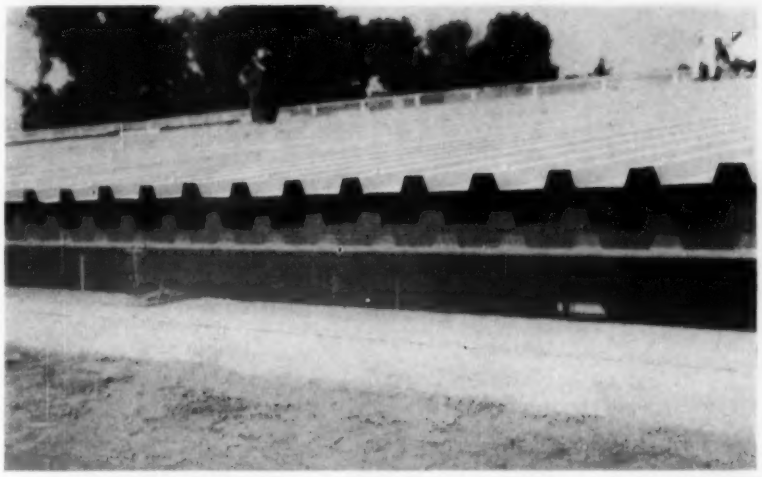
The design, using the aluminum sheets, is strong, providing a minimum live load of 25 pounds per square foot. The cover sheets are 0.032-gauge, made from alloy 3003-H14 furnished by Kaiser Aluminum and Chemical Sales, Inc., of Oakland, Calif. The sheets were formed into ribbed-corrugated sections, each measuring 1½ inches in depth and 7½ inches on centers. Each section is 15 feet long.

Purlins, 3 inches deep, and spaced 7 feet apart, support the corrugated sheets. These, in turn, are supported by 6-inch-diameter stanchions set in concrete footings on the floor of the reservoir. These were coated with coal-tar enamel; the purlins were given an additional coat of aluminum paint. All structural members were painted with red lead. We used steel columns because we felt they would be just as satisfactory and less expensive than the aluminum. The coal-tar coating is easy to apply and simple to maintain. We were able to protect the built-up sides of the reservoir by an inexpensive system that consists of a spillway constructed to channel any possible overflow into a nearby creek.

Automatic Pumping

We can fill the reservoir either by a connection with the Metropolitan District's big transmission main, or by a well located on the property. We boost the water from the reservoir to the distribution system with a 4,000-gpm Byron Jackson pump, operating against a 180-foot head at a speed of 1,770 rpm. This pump is a short-coupled, vertical, turbine type, with a 200-hp G-E motor operating on a 10% overload at full capacity.

In case of an electrical power failure, this pump can be operated by an automatic Buda diesel that drives the pump through an Amarillo right-angle gear drive. We operate the pump by remote control over a leased telephone wire.



Corrugation gives the aluminum sheets strength. Screening provides ventilation.

The diesel is completely automatic in that it starts itself three times a week and runs for a 10-minute period at a speed of approximately 800 rpm. This is a slower speed than is necessary for the centrifugal clutch to engage. If the water cooling or oil pressure fails or overspeed occurs, the diesel automatically stops, a light flashes on the board at the pump, and a warning horn sounds at the main pumping plant approximately 1½ miles away.

If power failure occurs after the operator has thrown the switch, the diesel engine will automatically assume full speed and take over the pumping operation. A solenoid switch is thrown automatically, preventing the electrical motor from engaging the pump while the diesel engine is driving the pump. When electrical power is resumed, the diesel automatically shuts down and the electrical motor engages the pump.

The booster pumping unit was installed in an existing pump house, which housed a well that fed the reservoir. In construction of the pump wells, a foundation was laid so that an additional pumping unit could be installed at a future date.

Because we expect Santa Ana's population to double itself by 1960, we now are preparing plans to duplicate the new unit this year and possibly again in 1960. These new additions will bring the city's total storage capacity to approximately 20,000,000 gallons.

The 6-inch columns look slender but give ample strength for this light-weight roof.

A view of the big diesel from the generator end, showing the engine's huge access plates. These easily removable plates are large enough to permit the operator to pass through, allowing him ample room in the interior for inspection and upkeep.

Diesel at Hudson, Mass., power plant works round the clock for dependable and cost-cutting service

A Workhorse in Power Harness

By THOMAS A. WALSH, *Manager Light and Power Department Hudson, Mass.*

NEVER idle, working round the clock, a 4,250-bph Nordberg diesel engine at the Hudson, Mass., municipal light and power plant has never had a forced shutdown due to engine failure. It is by far the most efficient unit in the entire seven-engine plant and is guaranteeing a source of continuous, dependable power at low cost for the surrounding community.

From the day the 10-cylinder Nordberg went on the line, it has been shut down only once or twice a year for inspection and preventive maintenance. Between its installation on May 10, 1951, and December 31, 1953, it was on the line for a total of 21,162 hours out of a possible total of 23,160 hours, generating 45,699,027 kwhrs. The only special attention the unit required was a new sparking brush on the 3,300-kw generator, repair of a broken wire on the jacket-water pump motor, and resoldering of a joint in a fuel-oil line.

The 3,300 kw of power that this engine provides gives the plant capacity in excess of peak load; six other diesel engines have a combined rating of 5,525 kw. The 1953 peak demand was 5,290 kw. This excess capacity is particularly important since the Hudson plant provides total or partial power for eight surrounding towns and has no means of purchasing power in the event of an emergency.

In 1953, the two-cycle Nordberg produced 18,072,000 kwhrs of the plant's total of 24,457,700 kwhrs, consuming 1,370,383 gallons of fuel oil—an average of 13.19 kwhrs per gallon

of fuel, or 10,465 BTU per kwhr. The remaining six diesels generated a total of 6,385,700 kwhrs, consuming 540,183 gallons of fuel oil—an average of 11.8 kwhrs per gallon of fuel. The efficiency of the Nordberg placed the 1953 plant average at 12.8 kwhrs per gallon of fuel. With the cost of fuel oil increasing from a 1949 low of 8.2 cents per gallon to the current price of 10.3 cents per gallon, the economy in fuel, as well as lube, consumption has cut over-all production costs.

Details of Locale

Hudson, a city of 8,000 persons in eastern Massachusetts, is an industrial community. Chief power consumers are a large machine and a plastics plant. Others include several shoe and textile plants, two small plastics companies, and several machine shops and lumber yards.

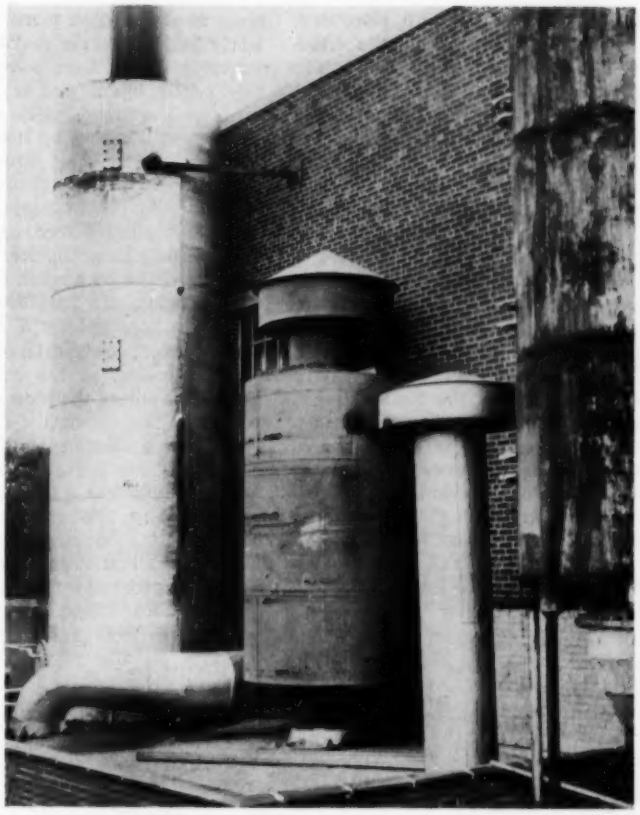
The 1953 killowatt-hour sales record was as follows: 7,441,400 kwhrs to large power consumers having a demand of 500 kw or more; 7,086,557 kwhrs to residential consumers; 3,214,622 kwhrs to small power consumers having a demand of 25 kw or more; 2,435,122 kwhrs for commercial lighting; and 764,859 kwhrs for street lighting and other municipal purposes, including 16,468 free kwhrs for municipal Christmas lighting. The plant maintains approximately 112 miles of energized line, with 531 miles of wire in place.

Hudson has a town meeting system of government, reminiscent of early Colonial days. Every adult over 21 years of age who has been a resident of the town for one year or more is eligible to vote and may "have his say" on all legislative matters coming before the meeting. The people themselves enact all laws and levy taxes by a two-thirds majority vote.

By such a vote, the town appropriated $20,000 in 1896 to purchase the local Hudson Electric Company. There were only 22 customers in those days and the principal purpose of the plant was to supply low-cost power for street lighting. Since then, the municipal plant has become the sole source of power for the towns of Hudson and Stow and maintains 4,239 meters in eight other communities.

From Steam to Diesel

By 1928, the output of the obsolete steam equipment had to be supplemented by purchase power. The townspeople were then called upon to decide whether they would abandon their municipal plant and purchase all power from a private utility, or finance modern, diesel operation. The decision was overwhelmingly in favor of diesels and continued municipal power.



At the rear of the Hudson plant stand a Maxim exhaust silencer and an American Air Filter air-intake silencer serving the two-cycle engine.

Consequently, the old steam turbines were removed and the plant altered to accommodate three diesel units: a 675-hp and two 900-hp engines. A fourth 1,200-hp diesel was installed in 1932 and, five years later, a fifth engine rated at 1,480 hp. The load continued to increase and, in 1942, a 3,000-hp unit was added, upping the plant's capacity to the 5,525 kw that carried the spiraling load of high-production years during World War II.

The installation of the new Nordberg engine restored firm capacity after a continuously rising postwar demand had threatened the plant with a serious shutdown in the event of engine failure. A new addition to the plant had been constructed in 1942 to accommodate the No. 6 engine and the Nordberg was erected in the extra space then provided.

With 10 cylinders of 21½-inch bore and 31-inch stroke, the Nordberg is rated at 4,250 hp at 225 rpm. It is a two-cycle, mechanical-injection, crosshead-type unit connected directly to a 4,125-kva, 3,300-kw G-E generator which operates in three phases and at 60 cycles. The 1,150-rpm G-E exciter is driven by V-belts.

Financing Improvement

Since revenue bonds are not permitted in Massachusetts, the people of Hudson financed their new engine by issuing noncallable, coupon-type, general obligation bonds, which are paid in 10 yearly installments. This bond issue covered the cost of purchasing and installing the new engine, building a small addition to the building to house the new engine's scavenging air blower, and installing an extra switching cubicle and an auxiliary bus on the 4,160-volt switchboard.

Peak loads at the Hudson plant have been steadily increasing. From a 1950 peak of 4,180 kw, the load mounted to 5,290 kw in 1953. By 1964, the load is expected to rise to 7,000 kw and the production volume should double the current average of 2,000,000 kwhrs per month. In anticipation of this demand, the city has

ordered another 5,100-hp Nordberg.

In a normal work day, the 4,250-hp unit runs for 24 hours, carrying the early morning load between 1 a.m. and 6 a.m. alone. Between 7:30 a.m. and 8 p.m. it is joined by the 3,000-hp No. 6 engine, plus either of the 900-hp engines. The other diesels generally alternate in this schedule, with the exception of the standby No. 4 engine. In 1953, the Nordberg's average load factor was 71.9%.

Feeding the Big Engine

Hartwell No. 2 fuel, with a gravity of 34.9, arrives at the Hudson plant by truck and is stored in two 20,000-gallon, steel storage tanks above ground, passing through an Exacto meter as it is unloaded. A DeLaval transfer pump then picks it up and sends it to a 400-gallon day tank which is elevated about 40 feet above the plant floor. The fuel reaches the Nordberg by gravity flow, passing through Nugent duplex fuel-oil filters before reaching the individual injection pumps and nozzles at each cylinder. The injection pump is an American Bosch product, and the standby fuel-oil booster pump is a DeLaval.

Ray lube oil is stored in two 10,000-gallon, steel storage tanks and is sent to each of the seven engines by motor-driven transfer pumps. It is kept at an easy flowing temperature by warm jacket water which is circulated by an Allis-Chalmers pump through heating coils in the bottom of each tank.

Lube oil for the Nordberg is pumped to a separate sump tank in the plant's basement and is sent to the engine's lube-oil header and to all pins, bearings, and to the pistons for cooling. Before reaching the lube oil header, the lube passes through a full-flow strainer and through a Nordberg strainer equipped with two permanent magnets. This strainer removes all metallic particles from the lube oil before they can reach the engine.

Lube-Oil Care

To keep the lube oil in top condition, it is pumped continuously from the sump tank and run through a fuller's earth filter by a small motor-driven pump. It is then returned to the sump. Cooling is accomplished by circulating the lube oil through a Struthers-Wells verticle, shell-and-tube cooler, equipped with an automatic, thermostatically controlled by-pass valve.

A closed jacket-water system is provided for each of the seven engines at the Hudson plant, soft town water being used for make-up. Raw water is drawn from a well at the rear of the plant and is circulated through Nordberg's heat exchanger and lube-oil cooler by means of a 20-hp, motor-driven Allis-Chalmers centrifugal pump. It reaches the well through a channel from the nearby Assabet River and is discharged back into the river when it has completed its circuit.

Scavenging air for the two-cycle engine is supplied by a 20,600-cfm, motor-driven, centrifugal Elliott blower, housed at the rear of the plant. Air enters the blower through a self-cleaning, oil-bath type filter, a product of American Air Filter, at a pressure of 14.6 psi and is discharged to the cylinders at a pressure of 17.5 psi. A 350-hp, 3,565-rpm electric motor drives the impellers.

Starting air at 350 pounds of pressure is stored in two bottles serving the big diesel. These bottles are supplied either by engine-driven compressors on the plant's three air-injection diesels or by a Worthington compressor installed in the basement of the plant building.

Control Panel

A control panel, conveniently located at the generator end of the unit, includes an Alnor exhaust pyrometer, Lonergan pressure gauges for jacket water, lube oil, fuel oil, and starting air. The panel also features audible and visual Viking alarms on jacket-water pressure and temperature, fuel-oil high and low levels, blower-motor load, and lube-oil pressure and temperature. Also installed on the panel are a watt-hour meter, a kilowatt meter, an ammeter for the blower motor, and switches on the fuel-oil service pump, the lube-oil standby pump, lube-oil purifier pump, fuel-oil transfer pump, fuel-oil booster pump, and jacket- and raw-water pumps. All meters and switches are G-E products. Two G & N Engineering swithchboards handle the 4,160-volt and 2,400-volt circuits.

The Hudson municipal power plant is a thriving, growing utility, maintaining rates that are lower than utilities in the area and comparable to the low rates of good municipal plants in that section of the country. Residential rates that dip from 5 cents to 1 cent per kwhr have resulted in the overwhelming popularity of electric ranges among the town's housewives. In Boston, Mass., approximately 25 miles away, gas stoves far outnumber electric ranges. In Hudson, however, the exact opposite is true. In 1953, there were 1,568 ranges installed throughout Hudson and Stow, towns of 8,000 and 2,000 population respectively, or one electric range for every six people.

In spite of its low-rate structure, the Hudson Light and Power Department conducts a sound and profitable business. In 1953, the department reported a total income of $573,709.81 and a clear net profit of $70,026.23. This money eventually finds its way back into the pockets of local citizens by reduced municipal costs and taxation.

William L. Gibbons, Victor A. Janusis, and Robert McCarthy are the Commissioners of Public Works; Willard A. Allen is plant superintendent.

350 Communities Seeking Advance Planning Aid

JOHN C. HAZELTINE, Community Facilities Administration Commissioner of the Housing and Home Finance Agency, recently told the American Municipal Association that approximately 350 communities have made inquiry regarding the federal funds for the Public Works Planning Program.* Municipalities can receive interest-free advances to plan public works, repayable when the projects are built. Those preparing applications must first fill out a Qualification Statement, signed by the Mayor.

On the basis of approved statements to date, advances of approximately $500,000 will be necessary to pay the cost of making preliminary plans for public works. Congress, last year, made an initial appropriation of $1,500,000 for planning advances. President Eisenhower's budget request calls for appropriation of an additional $8,500,000 for fiscal 1956. First preference under the program is given to municipalities under 25,000 population and for urgent projects involving health, sanitation and public safety. Applications for planning advances for any type of needed public facility including public buildings, streets, parks, and other community facilities will be considered, however. Information, instructions, and forms can be obtained from the nearest Regional Office of the Housing and Home Finance Agency.

* See "New Housing Act Emphasizes Slum Prevention and Neighborhood Rehabilitation," pp. 120-121 of the September 1954 issue of THE AMERICAN CITY.

Getting People Downtown and Back

By DAVID L. RIKE, *President*
The Rike-Kumler Company, Dayton, Ohio

IN Dayton, Ohio, 10% of the total real estate valuation for tax purposes is located on either side of Main Street *within a five-block strip.* If you do not protect the investment which produces 10% of the city's income, you are going to be pretty hard put to find the income elsewhere, or to continue services to your entire community.

In my opinion, the most important problem facing the central business section is getting people into and out of downtown quickly and comfortably. You must provide easy access to the large city from the smaller communities. This involves arterial highways that cross many political subdivisions. There should be an agency that can plan on an area rather than on a community basis. Four-lane arterial highways to the edge of the city and then traffic lights every block until you ultimately reach downtown are no more absurd than city throughways that end all too soon in suburban two-lane streets. Easy access to the downtown is important to both the individual car owner and to those who rely on mass transportation. Since several surveys, which we have made in Dayton, indicate that approximately half the people arriving in the central section come by mass transportation, it would seem only obvious as well as fair to do as much to make that service the best possible as to give of our time and money to improve the situation of the private car driver.

The number of passengers per private automobile vs. the number of passengers per bus or streetcar is vastly different. The number of cars jamming up the streets and highways create one of the most serious problems for the mass transportation vehicle.

Making the Most of Existing Facilities

Our Dayton experience with the Jiffy Parking system, which moved all-day parking to the fringe areas and sharply increased the turnover of shopper parking, is to me an outstanding example of what can be done to make the most of existing facilities, and is a wonderful tribute to what can be accomplished when local governmental planning authorities and business work together.

Let me quote from the second report of the Dayton Parking Association, which is dated October 1954:

When we initiated the "Jiffy Shopper Parking" program in February of 1953, 13 parking lots adjusted their LOW all-day rates to low short-time rates and HIGH all-day rates. This drastic change moved the all-day parkers (downtown employees) out another city block or two and opened up 2,760 car spaces per day. The turnover which had been 1.5 cars per space per day became 3 cars per space per day. Thus 2,760 cars could be parked where 1,380 cars were formerly parked.

This represented an increase of 1,380 cars per day without spending a dime for additional facilities. Since February 1953, the "Jiffy Shopper Parking" program has been extended to cover 29 parking lots and garages in the core area. The capacity of these lots has been increased from the original 920 car spaces to 4,233 car spaces. If we apply the 1.5 cars per space per day factor on these 4,233 car spaces, these spaces handled 6,349 cars per day compared with 12,700 cars being parked today in spaces that handled 6,350 in February 1953, an increase of 100%.

Sell Your Downtown

All too little is being done today to extoll the very real advantages that the downtown holds for the shopper. No war was ever won by retreating. We should take a positive, dynamic approach to promoting downtown. I am not thinking in this connection of city-wide promotional campaigns. We in Dayton have not been sold that these shots in the arm are of any permanent advantage. What I am talking about is year-wide promotion to make coming downtown as easy and as attractive as possible, and telling people the whole story.

The stockholders of Dayton *Shopping News*—with a home circulation equal to that of our daily newspaper—are basically the same as the directors of the Dayton Retail Merchants' Association. Here we had a medium where we could develop our own program of promoting the downtown area. We have adopted a theme in *Shopping News* for our parking program, and for use with our bus companies which identifies the downtown area as "The Heart of Dayton." To sell this idea, we devote a full page in each issue using different approaches, such as comparing the adventures of Marco Polo to the "Wonders of Shopping in the Heart of Dayton." We also have planned a series which will be focused along the "Alice in Wonderland" idea.

Grand Rapids Holds a Municipal Fair

Displays of city equipment prove inexpensive and effective ways of showing how departments operate

By Z. Z. LYDENS
Director of Public Relations Office
Grand Rapids, Mich.

GRAND RAPIDS' recent two-day Municipal Fair delighted the host of local residents who visited it and proved that inexpensive, attention-getting displays showing how city departments operate can be created by using everyday municipal equipment. The Fair, which featured a variety of apparatus, not only beguiled adults, but equally delighted children, who were allowed to handle the devices and thereby get a closer look at the way their city operates. So effectively were the municipal operations displayed that the 10,000 who attended the Fair set the whole city talking about it. Plans are now being laid for another exhibition in 1956.

Park Exhibit Scores Hit

Here's how some of our city departments built their displays around equipment used in their operations.

The Park Department laid down a carpet of artificial grass out of the storehouse of its cemetery division and built an 8-foot hedge around its space. It then arranged the space with monkeys, parrots, live tulips, artificial dogwood and forsythia, playground equipment, and tiny landscapes—interspersing it all with the tools of the park man's trade.

While the Park Department preened itself as the center of attraction, the Water Works Department, which showed the city's water pipeline from Lake Michigan, the filtration plant in miniature, and sections of the distribution system, boasted that it was outdrawing the Park Department. Meanwhile, the Water Department office staff made hundreds of souvenir identification plates on chains with its Model 3725FF Addressograph-Multigraph.

At the Police Department display, children queued up in long lines to have their fingerprints taken. In the Fire Department booths, boys were climbing all over the department's new American-LaFrance 1,000-gallon pumper and pulling fire-alarm boxes.

The Garbage Department got a big play for its landfill exhibit, which showed an area of filled land converted into a park and playground, while in the low-level area toy garbage trucks were dumping their loads and a tiny bulldozer, operated by remote control, was busy rolling up and down the steep slopes.

The Treasurer's office, which receives revenue from the city's parking meters, moved in its Brandt Automatic Cashier Company coin sorting and counting machine and set it operating to the delight of children who virtually washed their hands in the heaps of pennies and nickels. The City Clerk's office centered its exhibit around one of its voting machines, manufactured by the Automatic Voting Machine Corporation. Adults and children practiced voting, and the back of the machine was opened to show how votes are tallied.

To lend variety to the affair, there was a program of entertainment. A municipal chorus of 40 voices under the direction of the highway superintendent sang so well the city commissioners decreed it should become a permanent institution. The police quartet sang. The Recreation Department gave a square-dance demonstration by oldsters drilled to military precision. Most exciting number on the entertainment bill was a pistol shoot by the Police Department.

The Fair, which was staged in the exhibition hall of the Grand Rapids Civic Auditorium, was produced and directed by the recently set up city public relations department. The department developed the "touch and fiddle" concept of letting the vistors handle the equipment so that everyone could have a feeling of participating in the exhibit. City laborers from departments having slack work assignments during the winter months were used in setting up the exhibits. In this way the out-of-pocket expenses for the Fair were kept to about $1,000—a low amount for a city of over 175,000 persons.

An abbreviated look at some departmental displays at the Grand Rapids Municipal Fair. (1) Wares on exhibit at the Traffic Engineering booth include overhead and pedestrian signals, a striping machine, an automatic counter, traffic signs carrying various messages, and parking meters. (2) People queue up at the Water Department exhibit to receive their souvenir identification plates. (3) A sod cutter, a rotary cutter, a rotary tiller, and a leaf mulching machine—just some of the equipment used by the Park Department to keep the city's "green" areas in tip-top shape. Also on exhibit is a typical playground area. (4) The "secrets" of the sanitary landfill operation are unveiled at the Garbage Department exhibit. Note miniature equipment.

Sapulpa's treatment plant looked like this when it was getting ready to go into operation.

The Treatment Plant Has to be Rugged

Sapulpa, Okla., builds a sewage-treatment plant able to adjust to sudden peak-pollution loads without impairing purification efficiency

By J. ORVILLE BUMPUS
City Manager
Sapulpa, Okla.

OUR CITY is not large; we have a population of about 13,000. However, our city does have some "large" problems of waste disposal induced by the rich agricultural section that we serve.

In Sapulpa, food-processing plants and other related industries periodically contribute a waste to our system that would unmercifully overload a treatment plant designed to conventional standards. Therefore, to meet the obligation of stream cleanliness, we had to build a plant that is rugged enough to meet these peak-load conditions.

Our consulting engineers, Fell & Wheeler, of Tulsa, Okla., accomplished this very handily. They used the popular trickling filter, but added a supercharger in the form of a roughing filter that swings into extra action when the peak loads become troublesome.

Type of Plant

The plant might be described as a two-stage, trickling-filter type. During periods when the plant has to purify the excessively polluted sewage, the operators can recirculate the effluent from the primary filter back through the primary clarifier, thus letting this filter take a second shot at reducing the pollution shock load.

The plant has been designed for a population of 15,000. At a per capita contribution of 80 gallons of sewage per day, this means an average daily flow of 1.2 mgd (million gallons daily). The anticipated peak hourly flow is double this rate, and the minimum hourly flow is half. The designers anticipate an average BOD loading of 0.14 of a pound per capita per day, exclusive of the industrial wastes.

The sewage on entering the plant first passes through a grit chamber to remove the sand, gravel, and similar inorganic solids. A Link-Belt Tritor screen, located at this chamber, removes large floating solids, and returns them to the sewage flow.

The sewage then passes to the main pump station where three Fairbanks-Morse nonclog pumps lift it so that it can flow through the rest of the plant by gravity. This station can be provided with pumping capacity large enough to serve 30,000 people. Such an enlargement would require three pumps of 2.4 mgd capacity each, with one serving as a standby. At present, the plant has one pump of 1.2 mgd capacity that can be boosted to 2.4 mgd by changing the impeller and operating it at a higher speed. The other two pumps have capacities of 0.6 mgd each.

The Primary Clarifier

From this station, the sewage flows to the primary clarifier. This clarifier is a 65-foot Dorr unit which is used for the removal of the easily settled solids as sludge. The primary clarifier provides for splitting the effluent between the two filters that follow in almost any desired ratio. The effluent lines are also valved so that either filter may be cut out if necessary.

To withdraw sludge from the clarifier, the operator uses a telescoping valve so that he can see its quality and thickness. The valves are arranged so that the raw-sludge pumps

can transfer the sludge directly, if desired. This is helpful at times when a sludge line must be cleared. Scum on the clarifier is discharged into the sludge-withdrawal box.

The clarified sewage then goes to the first stage, or roughing filter. This is 60 feet in diameter and uses a Dorrco rotary distributor. It has a ventilating channel around the outside of the bed.

Recirculation

At this point, the sewage either can be recirculated or can go to the second filter, 120 feet in diameter. This is accomplished by a recirculating pump station at the primary filter where pumps of the same capacity as those in the main station have been installed. When the plant is at design flow, all three of these pumps may be operated at 1.2 mgd. The pump discharge header is valved so that all three pumps may discharge either to the primary clarifier or to the secondary filter. Float controls permit automatic operation of the pumps, which, at this point, can pass 1-inch spheres.

The distributors for each filter have capacities varying from 0.6 to 2.4 mgd. Each filter may be flooded by closing the sluice gates on the outlet. The filters are filled from the bottom through the 6-inch drain valves at the center piers; overflow weirs are provided in the wall at each outlet.

The filter effluent then passes to the final clarifier which measures 120 feet in diameter. At this clarifier is a flow meter that records the flow of all treated sewage and also, for practical purposes, serves as a measure of the raw sewage flow. Sludge is withdrawn from this clarifier through a gate valve and open box where the sludge may be seen and where the rate of flow may be governed by throttling the gate valve. Enough volume is withdrawn to keep the secondary filter in continuous operation.

Digester Operation

Chicago Scru-Peller sludge pumps transfer the sludge from the primary clarifier to the digester. The total digester capacity provides 2.33 cubic feet of volume per capita served, based on a population of 15,000. The suction piping at the pumps is arranged so that it may receive either raw sludge or sludge from the bottom of the digester, scum from the top of the digester, and sludge from the supernatant settling tank.

The digester has several supernatant draw and sampling points, and a small supernatant settling tank. It is equipped with a Pacific Flush Tank floating cover and uses a PFT heat exchanger to keep the sludge at optimum digestion temperature. The recirculating sludge pump is interlocked electrically with the raw sludge pumps so that it will operate whenever the sludge pumps do and thereby seed the raw sludge.

Sludge from the digester goes to open drying beds. These have been provided with concrete tracks so that the operators can drive trucks up onto the beds and more easily remove the sludge. The drying beds provide an area of 15,000 square feet, or the equivalent of 1 square foot per capita.

The plant has been functioning successfully for several months and has met the challenge of peak loads without difficulty. It has supplied a stable, well-treated effluent to our river without producing any problem of pollution damage.

When Installing Equipment in Playgrounds

By **NORMAN R. MILLER**
Vice-President
American Playground Device Company
Anderson, Ind.

IT IS important to buy sturdy, well-designed swings, slides, and other apparatus for a city playground. It is equally important to install this equipment correctly.

You may have purchased the finest, strongest, and safest apparatus built, but you will be in for much maintenance and replacement expense if you have not paid proper attention to installation details.

Correct installation is not so difficult as it might at first appear to be, however. Leading manufacturers supply detailed but easy-to-read blueprints, which show the ground plans and outline recommended procedures for installing each unit.

Any Parts Missing?

It's always a good idea to get the right start.

Check your equipment carefully at time of delivery. Before you have signed the carrier's freight receipt, make certain you have received all of the bags, bundles, cartons, crates, and pieces as detailed in the bill of lading that accompanies your invoice.

Much valuable time may be lost if, with a crew ready to install, you then find that the carrier has lost in transit or failed to deliver some of the parts needed to complete the installation.

Then, while part of your crew is beginning to assemble the units, others can stake off for the excavations, according to the ground plans. While the mix is still wet, the units—now assembled but with all fittings kept fairly loose—can be lifted into position and set down into the concrete.

Alignment of all frame members is of paramount importance in order to assure the best appearance and performance, along with maximum structural strength. So, while the concrete is still wet and the fittings still loose, a level should be used on all members to bring them into perfect alignment. Make sure that top beams are level and straight, and vertical supports perpendicular to the ground. After alignment, the fittings can be pulled down tightly, and the concrete allowed to harden.

No apparatus should be attached to the frames nor any playground unit be placed in use until the concrete footings have hardened thoroughly. Forty-eight hours is the minimum time that should be allowed; much better, 72 hours.

With the installation prints as guides, playground equipment can be installed in a relatively short time. In fact, the average unit requires only from three to six hours to set up.

Anchoring Equipment

Playground equipment will deliver longer and better performance if the upright supports are anchored deeply and solidly in concrete.

Concrete around the base of all frame-support members should be troweled smooth and somewhat conically, so that it is highest at the pipe members proper. It is recommended that at least four inches of turf cover all concrete footings, level with the ground line. This adds safety for the youngsters, protects the footings, and permits seeding.

The Spice and Variety in Centralized Purchasing

PART I

By LLOYD M. HEAD
City Purchasing Agent
Jackson, Mich.

CENTRALIZED purchasing saves money by two major methods:

1. Standardization on items of common usage in several departments.
2. Quantity purchases because of the combined buying power of all departments.

In the City of Jackson, Mich., four brands of toilet paper were being purchased from four vendors at prices ranging from $13.45 to $15.50 per case. By competitive quotations we selected one brand and one vendor, and now pay only $9.29 per case.

Three brands of paper towels were being purchased from three vendors for $6.13 to $10.30 per case. The selection of one brand and one vendor has resulted in a price of $5.11 per case.

Three hundred reams of duplicator paper were purchased at a total cost of $442.50 before we selected one vendor; we now purchase the same quantity for $322.00, a reduction of $120.50 or 27%. Sometime in the dusty past, someone had decided to use 8½-inch by 13-inch paper, so for years the city had been buying 8½-inch by 14-inch paper and paying an additional charge for cutting off the extra inch of paper already paid for. Investigation proved that 8½ inch by 14 inch would be satisfactory.

The "Blanket" Purchase Order

We also save money as well as clerical labor by the use of a "Blanket Purchase Order" which is issued to one vendor for delivery of a specific commodity where, and as required during our fiscal year. These blanket orders merely state that "all purchases of (item) will be made" from the selected vendor and no total or estimated total is shown.

There were a total of 450 spark plugs of assorted sizes purchased from eight vendors at 51 cents to 68 cents each. The blanket order to one vendor for the fiscal year 1953-1954 established a net price of 32 cents each; a different vendor secured the order for 1954-1955 at 31 cents.

Operating departments bought 33 assorted truck and automobile batteries from six vendors at a total cost of $585.54. Batteries of identical specifications purchased from one vendor on our 1953-54 blanket order cost $467.39, a reduction of $118.15, or 25%. When tabulating the quotations, we use the net price of a 2L-100 amp, 17-plate battery for determining the best value for the city. This battery cost the departments $21.56, but on the blanket order it cost only $14.95. The blanket order on batteries for this fiscal year of 1954-55 was awarded to a different vendor and this same battery today costs the city only $10.23.

When Buying Motor Oil

Fourteen vendors were selling various brands and grades of motor oil at prices of 68 cents to $1.09 per gallon before we standardized on specification MIL-0-2104 and established one supplier at a delivered price of 40 cents per gallon in 54-gallon drums. The departments had purchased a total of 1,821 gallons for $1,588.49. The cost of this oil at the blanket order price of 40 cents per gallon amounted to only $728.40, or a reduction of 54%. The blanket order price for 1954-55 from a different vendor is down to 38 cents per gallon.

Individual departments were paying $2.51 per gallon for permanent type antifreeze and an average of 86 cents per gallon for alcohol. Our purchase for last winter cost $1.92 per gallon for the permanent and 57 cents per gallon for the alcohol. The price on this winter's supply was reduced to $1.48 for the permanent and only 43 cents for the alcohol, a savings of $1.03 per gallon on the permanent and 43 cents per gallon on the previous purchase price of alcohol.

We also make use of the "Blanket Purchase Order" in a different manner to expedite the purchase of small "pick-up" items, eliminating the delay and clerical labor of a requisition and separate purchase order for each delivery. For example, we issue a purchase order to the local wholesale hardware dealer which reads: "To cover all purchases by the department of ..... for the year ending ....." The using department then lists the items, the cost, and the vendor's delivery ticket or invoice number on a partial receiving report form, which is the authorization to the vendor to deliver, as well as the acknowledgment of receipt of the goods. The copies of this form merely have to be distributed to the purchasing and accounting departments to complete the transaction without any further typing or manual posting. The operating departments do not abuse this system because of the qualification which states "the purchasing agent shall approve all invoices" and, of course, if the purchase was not approved, the invoice would have to be paid by the department head personally.

All requisitions and specifications are checked for any restrictive requirements that might reduce competition; they are also checked for quality standards too high and too costly for the particular work.

One department had requisitioned a printed form on 100% rag paper. No one knew why 100% rag paper was specified, except that was the paper they had always used. A paper mill representative informed us that the estimated life of 100% rag paper was 100 years, while the estimated life of 25% rag paper was *only 99* years. The department head decided to change to a 25% rag paper at about one-third the cost of 100% rag.

Zoning Plans Should Be Related to Utility Service Areas

By ROBERT C. HOOVER
Director of Planning
Morris County Planning Board
Morristown, N. J.

MANY municipalities are finding advantages in gearing their zoning patterns to their ability to extend water, sewer, and other utility lines. Where public sewer and water lines cannot be extended except at prohibitively high costs, areas are being zoned for large lots that can safely support both wells for private water supply purposes and septic tanks for private sewage disposal.

The Question of Extending Water and Sewer Lines

Because the centers of most communities are built up, the bulk of today's rapid growth is taking place at the fringes and outskirts of existing municipal developments. More often than not, the new growth is beyond the boundaries of existing central sewer and water systems. And so the question of extending the service areas of these facilities is frequently laid before town and city officials.

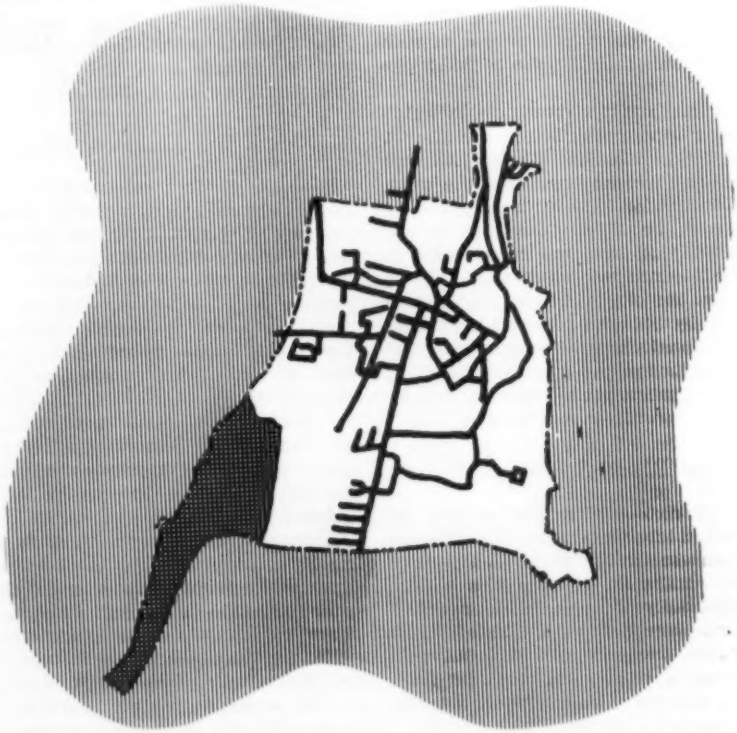
As is known, water and sewer lines cannot be extended indefinitely without incurring major expenditures to increase capacities of treatment plants, trunk mains, pumping stations, and other facilities. Thus the problem of service-area extension is to weigh, in each instance well in advance of intensive development, the advantages of urban water and sewer services against the alternative desirability of large lots, served by private wells, septic tanks, and leaching systems that involve little or no expense to the public.

Lack of Plan Brings Poor Results

So often, however, a careful estimation has not taken place and undersized lots have been permitted to be developed intensively well outside existing service areas. In many instances a developer enters a community, announces that he wants to help solve the local need for moderate income housing (and what community doesn't have such a need?) and says that he can do so only if his land costs are reduced by permitting him to construct the homes on small parcels.

Torn between the logic of not wanting to undergo expensive utility extensions and the popular desire to help out local families, the community often permits the subdivider to proceed with the construction of his houses on small lots—the houses to be served by wells and septic tanks. But as most communities have learned by bitter experience when the lots prove to be too small and the sewage begins to appear above the ground and the wells become contaminated, the general appetite for city-type services grow. It is only natural then that health authorities and affected residents alike demand utility extensions regardless of cost. To add to the local discomfort, mortgage lenders and title insurers may stop the flow of bank money into the affected areas until adequate facilities are made available. The resulting pressures for service extensions are thus difficult if not impossible to hold back, whatever the cost.

But the cruelest blow in this chain of events falls on the family with the slender bank account that must pay twice for its water supply and sewage disposal. If a reasonable capitalization of either a larger lot capable of adequately handling the well and septic tank or of a future assessment for piped water and sanitary sewage had been made at the outset, it would



Zoning and sewer service areas are carefully coordinated in New Canaan, Conn. The white center area of town is served by sewers and is zoned by small lots. The lightly shaded area is zoned for 1-acre lots capable of accommodating wells and septic tanks. The heavily shaded area is a largely undeveloped district that was recently rezoned to large lots to avoid later necessity of expensive sewer extensions.

have shown that the saving for the undersized lot was not only misleading but a genuine snare and delusion.

Planning is clearly needed, then, to insure that suburban service extensions are made on the basis of sound fiscal policy.

Here are two examples that illustrate the kinds of advanced planning that should be carried out in dealing with the problem of extending water and sewer services.

Several years ago a careful study was made of the costs that would be involved in extending sewer and water services from the City of Ithaca, N. Y. into the adjacent Town of Ithaca and village of Cayuga Heights. The study was carried out by the Greater Ithaca Fact Finding Committee. Proposed service districts in each of the suburban communities were laid out and estimates were prepared of the tax rate increases that would result from the service extensions. The accompanying table adapted from the Committee's report shows that the tax rate effects might be quite reasonable in some districts but prohibitively high in others.

ITHACA AREA
COST ANALYSIS TABLE

DISTRICT	ESTIMATED INCREASE IN TAX RATE PER $1000 ASS. VAL. FOR WATER	FOR SEWER	ESTIMATED FRONT-FOOT COST FOR SEWER MAINS WITHIN NEW AREA
1	$0.00	$4.82	$0.19
2	0.19	4.82	0.19
2-A	10.92	4.82	0.19
3	0.00	4.82	0.19
3-A	0.00	4.82	0.19
4	0.00	4.90	0.17
5	0.00	0.00	0.00
6	0.00	6.63	0.15
6-A	9.59	6.63	0.15
7	0.00	6.18	0.25
7-A	12.50	6.18	0.25
8	0.00	5.39	0.15
9	1.33	5.39	0.15
10	0.00	4.64	0.17
11	0.00	7.52	0.17
11-A	23.16	7.52	0.17
12	0.72	4.61	0.13

For example, the cost of extending water service in districts 2-A, 6-A, and 11-A would entail tax increases from $10 to $23 per $1,000 of equalized assessed full value. A house with an equalized assessed full value of $10,000 in such a district could expect a tax increase of from $60 to $230 per year. This is largely because these districts are above the pressure limits of the existing water system and could be served only by providing costly booster stations and high-level storage tanks.

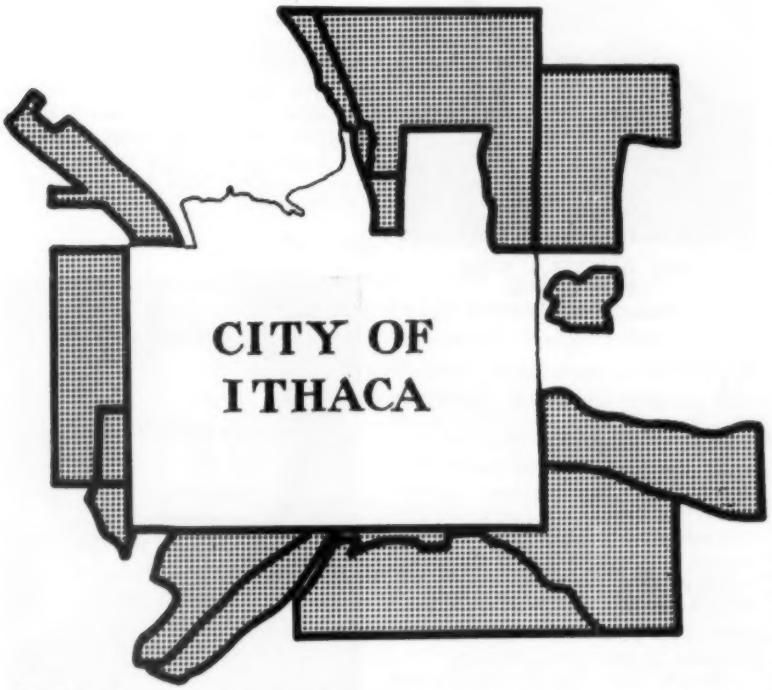
A similar, but narrower, range of tax increases would result from sewerage extensions, with benefit assessments for lateral mains running somewhat lower in areas of deep-dirt than in areas of shallow bed-rock.

With information of this sort at hand it is then possible for a community to choose its course of action from these alternatives:

(1) extend services into all proposed service areas;
(2) hold the line at the existing service boundaries and zone all outlying areas for large lots and thus largely preclude the need for future extensions;
(3) extend services on a selective basis by providing new water and sewer lines in areas where extension costs are reasonable and by zoning areas for large lots where extension costs would be prohibitive.

The second example illustrates a town where for many years the overall zoning plan has been geared to the service areas of water and sewer lines. The town is New Canaan, a suburban community of 10,000 persons in southern Connecticut. There, single, and two-family houses on lots of 7,500 to 10,000 square feet are permitted within an area coinciding

(Continued on page 163)



Possible service areas for water and sewer main extensions into districts surrounding Ithaca, N. Y. An investigation of the costs of extending such services into these areas formed part of the kind of careful planning needed before a good extension policy can be adopted. The table above shows the possible tax rate increases that would result from the water and sewer extensions into the service areas shown on the map.

Four Women Lead State Leagues of Municipalities

MRS. MADELEINE S. FROST
New Jersey
State League of Municipalities

The recent appointment by the New Jersey State League of Municipalities of Mrs. Madeleine S. Frost as executive director suggested to* THE AMERICAN CITY *an inquiry as to the number of women holding similar positions in other states. A check-up shows that of the 43 state municipal leagues in the United States only four have a woman as chief staff officer. Here are their four portraits.

MRS. Madeleine S. Frost, whose appointment as executive director and treasurer of the New Jersey State League of Municipalities, was announced in December 1954, is the first woman to hold that position in New Jersey. She has been a member of the League staff for 37 years serving since 1940 as assistant executive director. Since 1951 she has also been editor of the League's magazine, *New Jersey Municipalities*, of which she was associate editor from 1932 to 1951. Allied to her magazine work has been the Annual Conference exhibit, an idea she originated.

MRS. DAVETTA L. STEED
North Carolina
League of Municipalities

WHEN the secretary of the North Carolina League of Municipalities, Patrick Healy, Jr., was granted a leave of absence, in April 1942, to enter the United States Navy, Mrs. Steed, then office manager and Mr. Healy's assistant, was appointed acting executive secretary, pending his return. In December 1945 Mr. Healy resigned as executive secretary, and Mrs. Steed was appointed to succeed him. In October 1954 her title was changed to executive director.

Davetta Steed was the first woman to serve on the Executive Board of the American Municipal Association, having been elected to that position in 1946 and again in 1951.

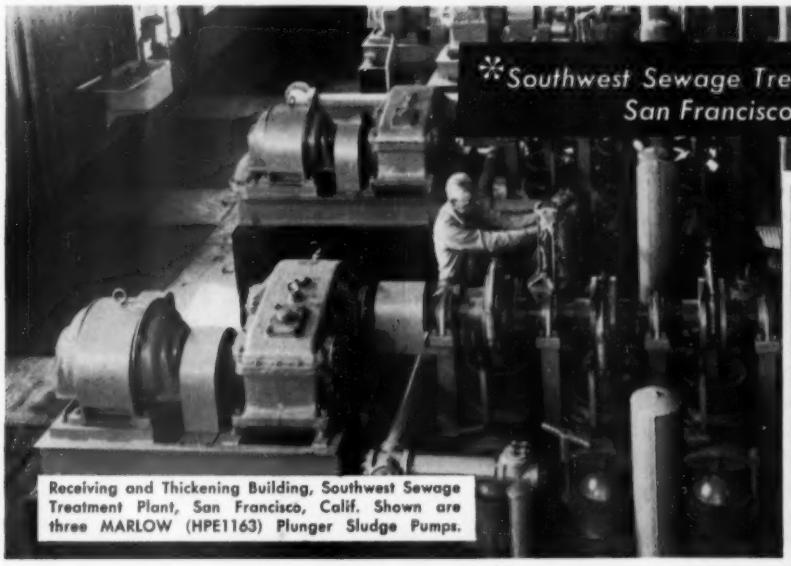
FOR the 15 years prior to her appointment, in July 1952, as Secretary-Treasurer of the Louisiana Municipal Association, Mrs. Warriner was occupied with raising her family. At the same time, however, she engaged in such volunteer activities as serving as chairman of the Louisiana Art Commission, national president of the Newcomb College Alumnae, town councilman of St. Francisville, La., West Feliciana Parish president of the American Red Cross and of the National Tuberculosis Association, etc.

MRS. ANNA JANE WARRINER
Louisiana Municipal Association

MISS Burr has been executive secretary of the League of North Dakota Municipalities since September 14, 1953. For six months prior to that date she had been acting executive secretary, an appointment that followed immediately upon the death of Myron H. Atkinson, who had been the League secretary for 25 years. Roberta Burr had previously served for several years as research assistant for the League after receiving the degree of master of arts in public administration from the University of Minnesota.

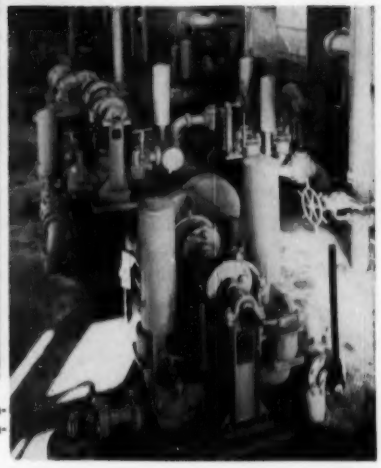
MISS ROBERTA C. BURR
League of North Dakota Municipalities

again MARLOW gets the job...*



*Southwest Sewage Treatment Plant, San Francisco, California

Receiving and Thickening Building, Southwest Sewage Treatment Plant, San Francisco, Calif. Shown are three MARLOW (HPE1163) Plunger Sludge Pumps.



Filtration and Elutriation Building, Southwest Sewage Treatment Plant, San Francisco, Calif.

...23 MARLOW Plunger Sludge Pumps installed!

for *re-circulation, draw-off* and *transfer of sludge*

ONCE MORE—MARLOW Pumps are relied on for continuous, dependable performance . . . and the list of municipal installations continues to grow. Already over 400 municipalities—across the country—have installed Marlows because they are efficient, reliable and durable. They give that extra "plus" when performance counts. Marlow Plunger Sludge Pumps are the direct result of many years of 'on-the-job' research and development . . . they have set the pace for advanced pump engineering to meet job specifications.

At the Southwest Sewage Treatment Plant, Marlows do a complete job:

- **. . . for re-circulating sludge in digesters and transfer of sludge between digesters.**
- **. . . for draw-off of sludge from digesters *at a steady rate.***
- **. . . for transfer of processed sludge from one elutriation tank to another.**
- **. . . for transfer from final elutriation tank to vacuum filters.**
- **. . . for transfer of raw sludge from thickening tanks to holding tanks or digesters.**
- **. . . for re-circulation of raw sludge in holding tanks or between holding tanks and receiving and thickening tanks.**

MARLOW PLUNGER SLUDGE PUMPS are available with single, double, triple and quadruple plungers. 360 to 30,000 GPH standard displacement.

Remember . . . for heavy sluggish pumping of any kind MARLOW does the job better because it is designed better. MARLOW *means* — good pumping.

Write today for details. Let a MARLOW Sales Engineer give you the facts, figures and specifications on the complete MARLOW Pump line.

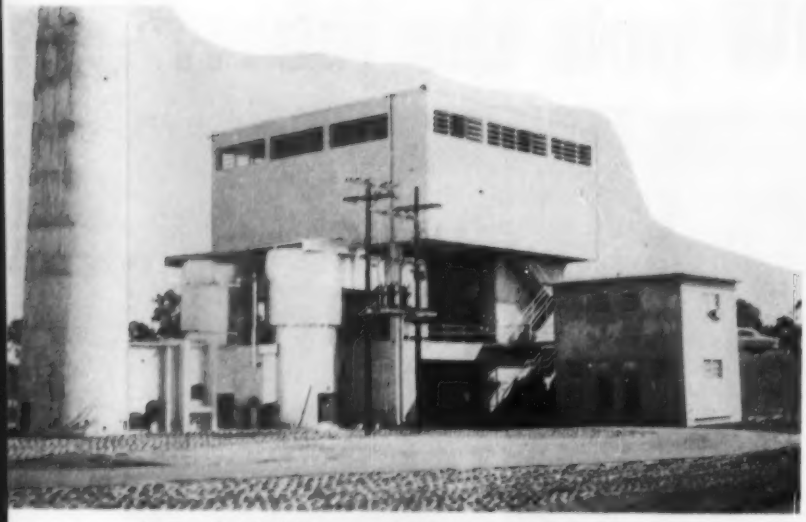
MARLOW PUMPS RIDGEWOOD, NEW JERSEY

DIVISION OF BELL & GOSSETT COMPANY • *Branch Factories: Longview, Texas • Morton Grove, Illinois*

094

Fort Lauderdale, Fla., puts incinerator units outdoors to lower the costs and improve operation

Open-Air Incinerator Design



In Fort Lauderdale's unusual plant, the incinerator furnaces stay outdoors to enjoy Florida sunshine and provide comfortable working temperatures.

By EDMUND FRIEDMAN, Vice-President
Maurice H. Connell & Associates, Inc.
Consulting Engineers
Miami, Fla

FAST-GROWING cities usually ache with growing pains; refuse disposal is one of them. Fort Lauderdale, one of Florida's fastest growing municipalities, has been doubling its population with each decade. And the community has felt the pains of inadequate refuse-disposal facilities most acutely.

The city had been operating an obsolete incinerator which, in addition to being in poor repair, had a capacity of only one-third of existing requirements. The remainder of the refuse was sent to an offensive, nuisance-creating, burning dump. Both City Manager H. Milton Link and City Engineer E. L. Patterson realized that a remedy was seriously needed and convinced the city council to retain our firm as consulting engineers to design and construct a new incinerator.

New Incinerator Site

Fortunately, the city owned a 60-acre tract approximately 5 miles northwest of the center of town and just outside the city limits in the general direction of probable expansion. The site was ideal for both present and anticipated requirements. Furthermore, it presented no zoning problems. Since a part of the site had previously been used for borrow purposes, it also offered the advantage of a short haul for disposal of ashes from the incinerator to fill the borrow area.

Refuse Quantities

From our studies, we estimated that the people of Fort Lauderdale contributed 2.7 pounds of refuse per person per day. However, because of the influx of visitors, the monthly averages vary widely. We found that the minimum was 79% of the average month, and that the maximum was 124% of the average month. Character of the refuse, population trends, and seasonal fluctuations were carefully analyzed to determine the size of the plant.

Labor costs for a 150-ton plant are practically identical with those for a 250-ton plant. Therefore, our studies embraced operating costs for one, two, and three shifts to determine whether it was more economical to spend more initially for a larger plant, thus reducing the number of shifts, or to build a smaller plant using more shifts.

We concluded that a 250-ton plant would be the most satisfactory and should meet Fort Lauderdale's requirements until 1970 by using a three-shift operation when the refuse volume increased. Moreover, the design selected will permit plant expansion by duplicating the structure farther north on the site. This can be accomplished without interference with the present plant.

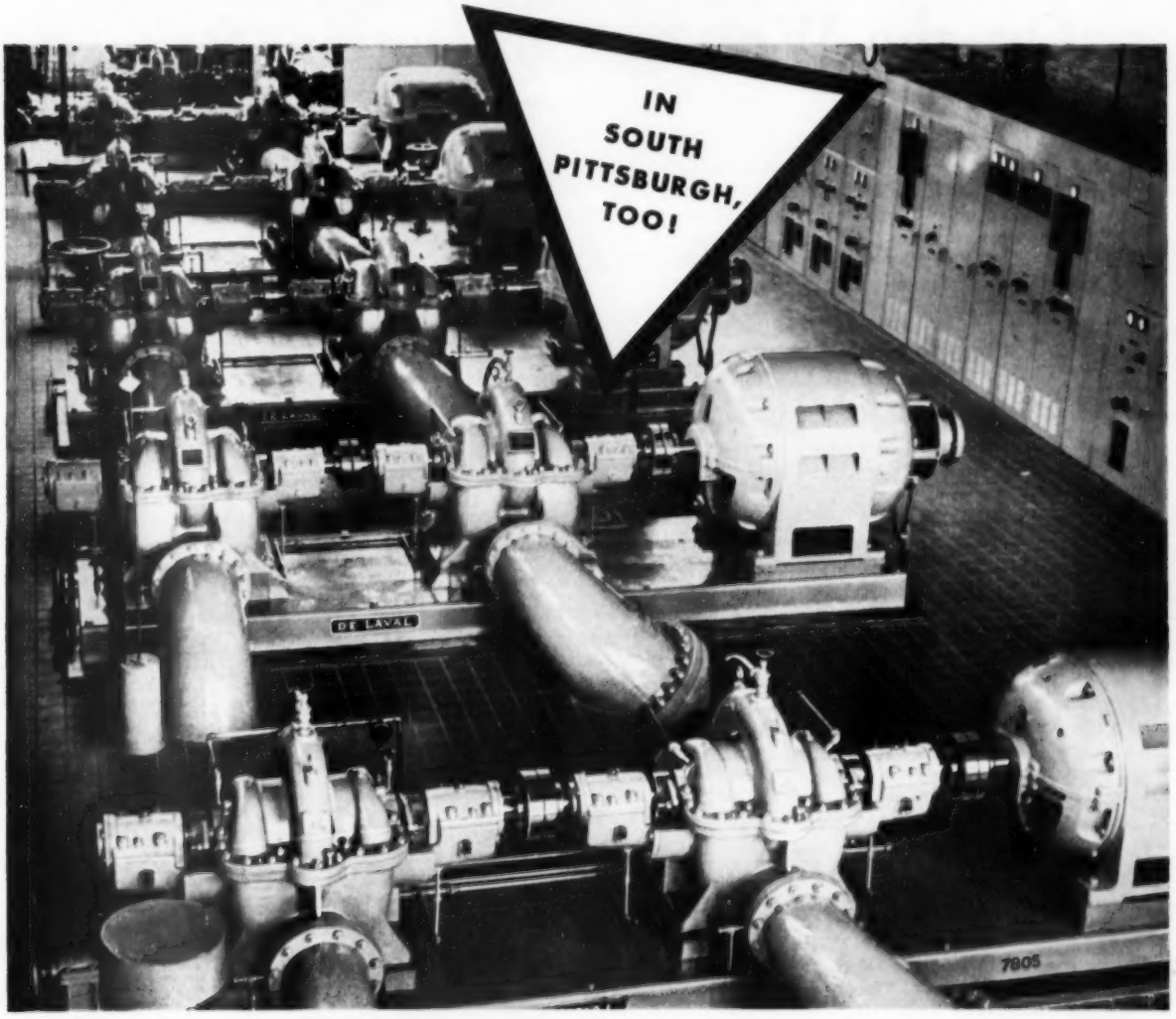
The incinerator building has a structural steel frame, reinforced concrete, and concrete block facing with stucco exterior. Adverse foundation conditions necessitated the placement of a 2-foot-thick reinforced-concrete mat beneath the entire structure. Because of the flat terrain, the low ground elevation, and a high groundwater level reaching within 2 feet of the surface, the structure had to be elevated and ramps constructed to the dumping-floor level.

For reasons of economy and better operation, a two-story building containing the superintendent's office and washroom facilities was constructed 15 feet away from the incinerator. A bridge walkway from the building leads to the incinerator's operation-floor level. The scale house is located at the top of the ramp near the tipping floor. The plant superintendent can observe most of the operation from his office.

The plant consists of an open tipping area with a canopy for weather

(*Continued on page 159*)

DE LAVAL pumps America's water...



These five De Laval centrifugal pumping units, each consisting of two pumps in series, are installed in the Hays Mine Station of the South Pittsburgh Water Company. The unit in the foreground is designed for 5,400 gpm against a total head of 395 ft. at 1,200 rpm and is driven by a 600 hp motor. The other four units are identical, each designed for 9,000 gpm against a total head of 395 ft. at 1,200 rpm, and are each driven by a 1,000 hp motor.

More than 80% of America's cities depend on De Laval pumps to meet their water needs efficiently and economically. De Laval municipal pumping units range in capacity from 100 thousand to 100 million gallons per day.

NOTE:

Have you considered the dollars and cents savings you can make by replacing your old pumps with new, more efficient De Laval units? Write to De Laval for Pump Fax bulletin which includes a valuable "power savings" chart.

DE LAVAL *Centrifugal Pumps*

DE LAVAL STEAM TURBINE COMPANY

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DL-888

ATLANTA, Ga., is

On the Way to Congestion Relief

TRAFFIC congestion costs Atlanta's citizens, business, and industry an estimated $65,000,000 a year, says the 60-page master planning program recently issued by the Atlanta (Ga.) Metropolitan Planning Commission. Another highlight of the report is the statement that a street network is needed to tie together the local systems and speed the flow of metropolitan traffic.

The Existing Street System

The street system inherited from a different era is made up of radial streets, which converge on the downtown hub like the spokes of a wheel. They are narrow, crooked, and hilly. Lack of cross-town routes connecting the outlying commercial, industrial, and residential areas force virtually all traffic to funnel through the central area on the radial system.

While the sketch shown here is schematic, up-to-date maps of Atlanta show that most of the streets and highways needed for the ring routes are already available, and several improved routes are ready to go.

Trafficways Objectives

The heaviest flow — the movement into the central area in the morning and out in the evening — would be handled primarily by radials. Crosstown routes and ring roads (a series of streets linked to form a continuous route) serve those vehicles that need to move across or around the metropolitan area without passing through the crowded central district. Intercity and interstate travelers wishing to bypass the built-up areas of the city would also use the ring roads.

The Ring Roads

For the record, an inner loop to distribute traffic to the central business district is provided by sections of the North-South Expressway, the recent Jones-Simpson Street improvement, Northside Drive (West By-Pass), and a proposed connection between Northside Drive and Brotherton Street. (It is possible that traffic volumes will ultimately reach a point which will require further improvements to bring the entire inner loop up to expressway standards.)

An intermediate loop consists of Moreland Avenue, University Avenue and its extension, a new route paralleling the Louisville and Nashville Railroad, and Tenth Street–Virginia Avenue. A six-lane major street is proposed.

The two outer loops, shown on the map as boulevards, follow new routes through generally undeveloped areas. Thus they provide the advantages of wide right-of-way and limited access at relatively low cost.

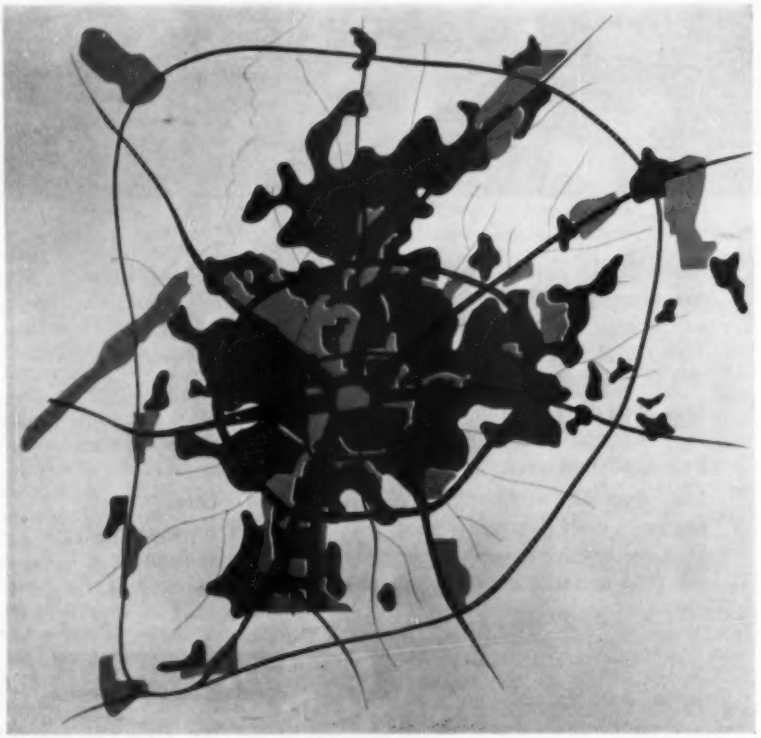
Two perimeter circulation streets are proposed to aid the movement of automobile traffic within and around the central business district. On these "rim roads," traffic can move between the different downtown sectors without passing through the inner core.

A shopper or businessman would come in on the expressway or one of the major gateway streets and, entering the perimeter street system, move around to a parking facility at the edge of the core area, yet close to his particular destination. Due to the prohibition of curb parking and unloading, the progressive timing of traffic lights, and the one-way movement of traffic, he should be able to do this quickly, easily, and with minimum interference with pedestrian or transit movements.

Close-In Parking

In addition to low-cost fringe parking, there will be more short-time parking accommodations close to the central business district. These would provide for the needs of shoppers, businessmen, and downtown employees who use their cars during the day. Some all-day parking would also be available at rates higher than those charged in fringe parking areas.

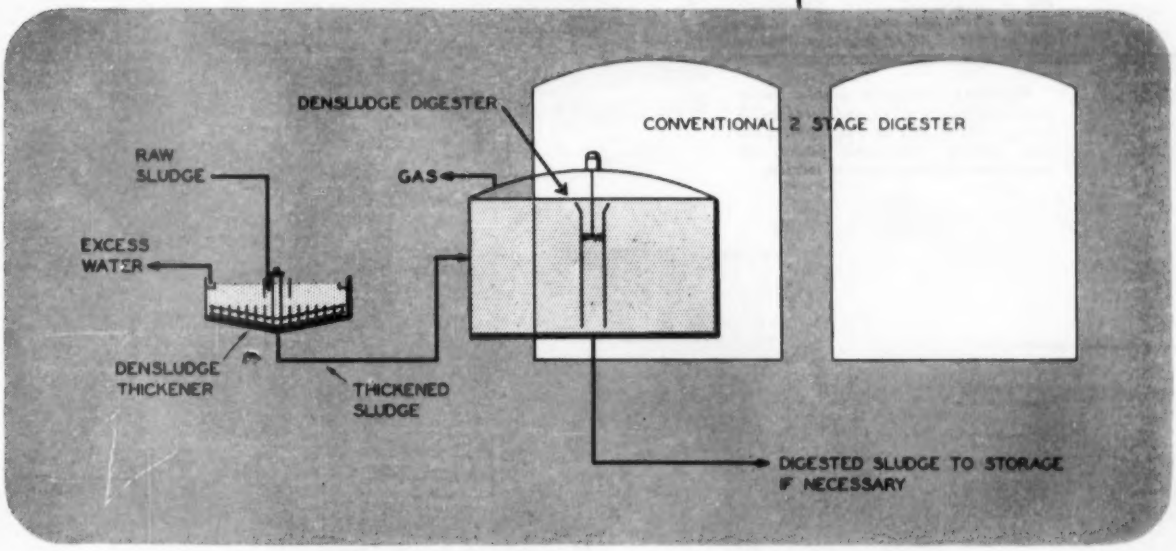
The close-in parking areas are located for easy accessibility to and from perimeter streets. The aim is to reduce, if not eliminate altogether, the need for vehicles to penetrate the core area.



Schematic plan for handling Atlanta traffic in, out, and around Atlanta's business district. Work areas are in black; residential, in gray.

Why Digest Water?

Densludge System Cuts Digester Requirements up to 80%



There's no mystery to the Dorrco Densludge Digestion System. Major components are a Densludge Thickener followed by a Dorr Digester equipped with a high-capacity, draft tube mixer.

How are such amazing reductions in digester capacity requirements possible?

First — Primary digester volume is halved because raw sludge volume is reduced by one half by removal of excess water in Densludge Thickener . . . same digestion detention is provided with half the digester volume.

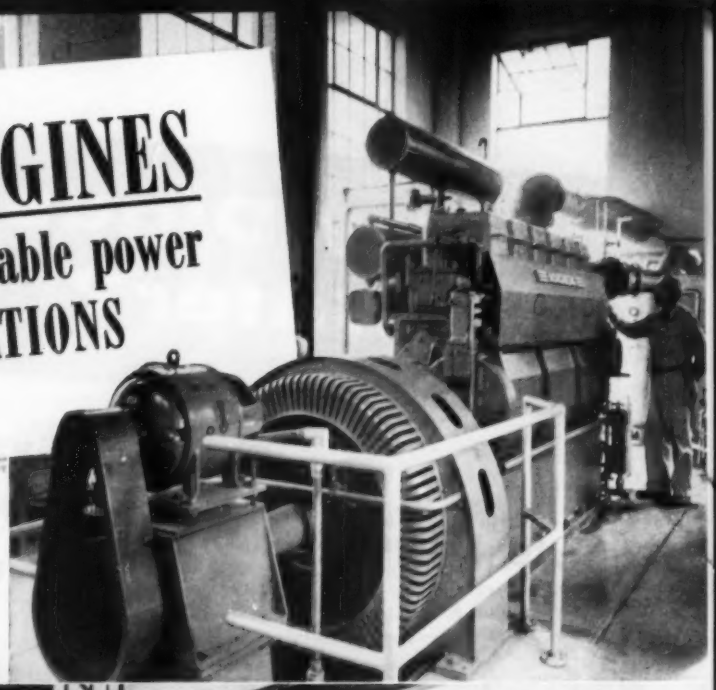
Second — Secondary digester is not required . . . supernatant is eliminated . . . only storage volume required is for digested sludge.

Third — High capacity mixing means a smaller digester due to increased volume utilization efficiency.

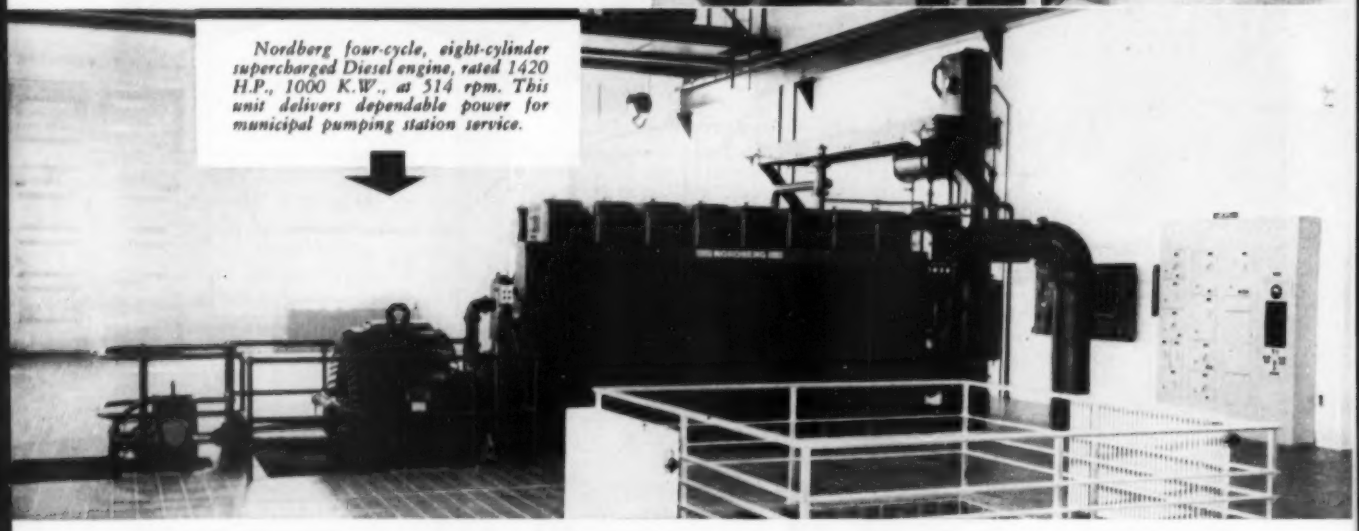
And Densludge Digestion can be used with any flowsheet in both new and existing plants. Design loadings may be as low as ½ cu. ft. per cap. for primary treatment plants and 1½ cu. ft. per cap. for activated sludge plants. For the complete story on Dorrco Densludge Digestion, backed up by operating results from full scale installations, write for Bulletin No. 6262, Dorr-Oliver Incorporated, Stamford, Conn.

NORDBERG ENGINES

furnish low cost, dependable power for PUMPING STATIONS



Nordberg four-cycle, six-cylinder Duafuel® engine rated 375 H.P., 250 K.W., at 600 rpm. This unit, operating on natural gas, powers two motor-driven centrifugal water pumps.



Nordberg four-cycle, eight-cylinder supercharged Diesel engine, rated 1420 H.P., 1000 K.W., at 514 rpm. This unit delivers dependable power for municipal pumping station service.

WHEN it comes to furnishing reliable, low cost power for municipal and industrial pumping operations, Nordberg engines have been thoroughly job-tested and proved in numerous installations in many parts of the world. Two typical Nordberg Diesel Engine Generator units are shown here, each providing the necessary power to keep electrically-driven water pumps on the job, day-in, day-out.

Built to provide the most economical power plant with low first cost as well as low operating costs, Nordberg engines will efficiently burn Diesel fuel, natural gas, or any combination of both—as well as sewage gas, manufactured gas and propane. With this wide fuel selection Nordberg can furnish the most efficient unit to meet specific power requirements . . . for pumping applications and for main or stand-by-power in almost every class of service.

Nordberg, as builders of America's largest line of heavy duty engines, in sizes from 10 to over 10,000 H.P., backed by over a half century of specialized machinery building experience, can give you valuable assistance in solving *your* particular power problem. Call or write for further information. *Nordberg Mfg. Co., Milwaukee, Wis.*

NORDBERG

DIESEL • DUAFUEL® AND SPARK-FIRED GAS ENGINES

P554

ACT NOW!

eliminate "orphans" from your fire protection system . . . with

IOWA

GATE VALVES and FIRE HYDRANTS

Don't Gamble on Obsolete Equipment

...BE READY FOR ANY EMERGENCY!

"Forever" is such a long, long time. In this H-bomb age, we hesitate to promise that replacement parts for Iowa Hydrants and Gate Valves will be available "forever." But we'd like to—because, actually, replacements are readily available today for every part of every hydrant and gate valve Iowa ever has made. That's a record that extends way back to 1909—almost a half century ago It's a record we plan to maintain. So, this much we can say: You're as "safe as safe can be" in replacing NOW with time-proved Iowa. For full details, please write TODAY!

IOWA HYDRANTS

Provide full, truly unrestricted water way.

Open with the pressure for faster water delivery.

Close against the pressure to eliminate water hammer, provide flushing action.

Assure positive drainage.

Are available for any type of connection.

All working parts removable through top—no digging or special tools required.

Meet all A.W.W.A. specifications.

IOWA GATE VALVES

Double disc, parallel seat.

Positive wedging action for efficient, no-leak closing.

Gates hung loosely from stem nut—no binding.

Rugged, time-proved design means long life, low service costs.

Available with bell, flange, or mechanical joint connections to fit any existing or planned installation.

Meet all A.W.W.A. specifications.

IOWA VALVE COMPANY

Oskaloosa, Iowa • *A Subsidiary of James B. Clow & Sons*

"Century" Pipe, 4" Class 150, ready for laying in trench in Oakland, Oklahoma.

SMOOTH BORE

"CENTURY"® PIPE

The smooth bore of "Century" Asbestos-Cement Pipe means less resistance to water flow and, consequently, lower pumping costs. Formed on a smooth steel mandrel, the pipe has an interior surface to match. The Williams and Hazen Constant "C" is conservatively placed at 140 for "Century" Asbestos-Cement Pipe. Being non-metallic, it cannot tuberculate.

More and more cost and tax conscious communities are recognizing the economy of "Century" Pipe. We will gladly furnish information about its advantages. Write today for a copy of our free booklet, "Mains Without Maintenance."

QUALITIES THAT MAKE "CENTURY" PIPE ECONOMICAL, TROUBLE-FREE, LONG-LIVED

1. NON-TUBERCULATING
2. NON-CORROSIVE
3. EXCEPTIONALLY STRONG
4. DURABLE
5. IMMUNE TO ELECTROLYSIS
6. TIGHT JOINTS
7. SMOOTH BORE
8. EASILY, QUICKLY LAID
9. LIGHT WEIGHT
10. LOW COST

"Century" Pipe meets the A.W.W.A., A.S.T.M. and Federal Specifications for asbestos-cement pressure pipe.

KEASBEY & MATTISON COMPANY • AMBLER • PENNSYLVANIA

K&M best in asbestos®

Nature made asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

San Francisco's New Municipal Asphalt Plant

. . . gets help from the city's sewage-treatment plant

By SHERMAN P. DUCKEL, *Director of Public Works, San Francisco, Calif.*

FOR the past 45 years, the City and County of San Francisco have been operating a city-owned plant to produce asphalt for the general maintenance of its streets, schoolyards, and paved walkways. Due to its obsolescence, this old plant no longer operates efficiently and cannot supply enough material to meet peak demands for repairs of our greatly increased mileage of paved streets.

The Plant—Site and Operation

Consequently, in 1952 and 1954, the Board of Supervisors earmarked $505,600 from California's state gas-tax funds for the construction of a new asphalt plant. The site selected is on city-owned property adjacent to our Southeast sewage-treatment plant. Proximity of the site to the treatment plant makes it possible to utilize steam generated by the treatment plant boilers to heat the asphalt tanks, eliminating the need for a boiler. The extra steam will be charged to operating costs of the plant. Design of the plant is based on a maximum continuous output of 90 tons per hour.

The aggregate and liquid asphalt are each delivered on individual spur tracks, approximately 700 and 500 feet long. The aggregate is unloaded into one of two hoppers, each 30 feet in length and 14 feet in width, and the asphalt into one of three 14,000-gallon, steam-heated asphalt storage tanks.

The aggregate is then transported by conveyor and elevator to five 300-ton, steel storage bins, thence carried by conveyor and elevator to a gas-fired dryer, 28 feet long and 84 inches in diameter, where it is heated and dried. The hot aggregate is elevated to the 3,000-pound, batch-mixing plant where it is mixed with the hot liquid asphalt.

The mixing plant is equipped with aggregate-segregating screens, a pug mill mixer with a 60-hp motor and special wear-resistant, iron-blade tips, a 15-minute retention bin, and a reject-overflow bin. A 50-hp exhaust fan collects aggregate dust and fumes and discharges them through a cyclone and air-washing system.

General Controls

The control building is the nerve center of the plant. It houses the controls of the unloading hoppers, the elevator and conveyor systems, and all plant motors. Feeding control is accomplished generally by vibratory feeds under all the storage bins.

The storage bins, the dryer, the mixer, and the asphalt tanks are supported by cast-in-place piles designed for 35-ton loads. The control building, cyclone, and transformer yard are placed on timber piles. The concrete foundation for the unloading hoppers rests on a sand stratum 25 feet below ground surface.

The contract for this construction was awarded to Hart & Hynding, Inc., for the low bid of $407,101. One month later, in September 1954, the project was about 25% complete. We expect that it will be ready for operation very soon.

The general design of the plant was prepared by the Bureau of Engineering of the San Francisco Department of Public Works. Considerable latitude was allowed the bidder in his choice of mixing-plant equipment, subject to just a few special requirements. The plant selected is a product of Madsen Iron Works, Inc., Huntington Park, Calif. It will be operated by the Bureau of Street Repair of the Department of Public Works.

Explosive Sewage

MOST cities have ordinances that spell out what can and can't be dumped into the sewer. But even with such ordinances, flammable matter occasionally does get into a sewer and cause a dangerous explosion.

The sewage-treatment plant at the Danville (Ill.) Sanitary District suffered a series of such explosions last January, apparently caused by gasoline, naphtha, or some similar solvent that found its way into the sewer. It wrecked the building that houses the screen, the Comminutor, and mechanical grit-removal facilities. It completely removed the heavy tile roof, blew out all the windows, twisted the steel frames in several windows, and cracked walls from floor to roof in corners farthest from the inlet sewer. Fortunately, no one was injured.

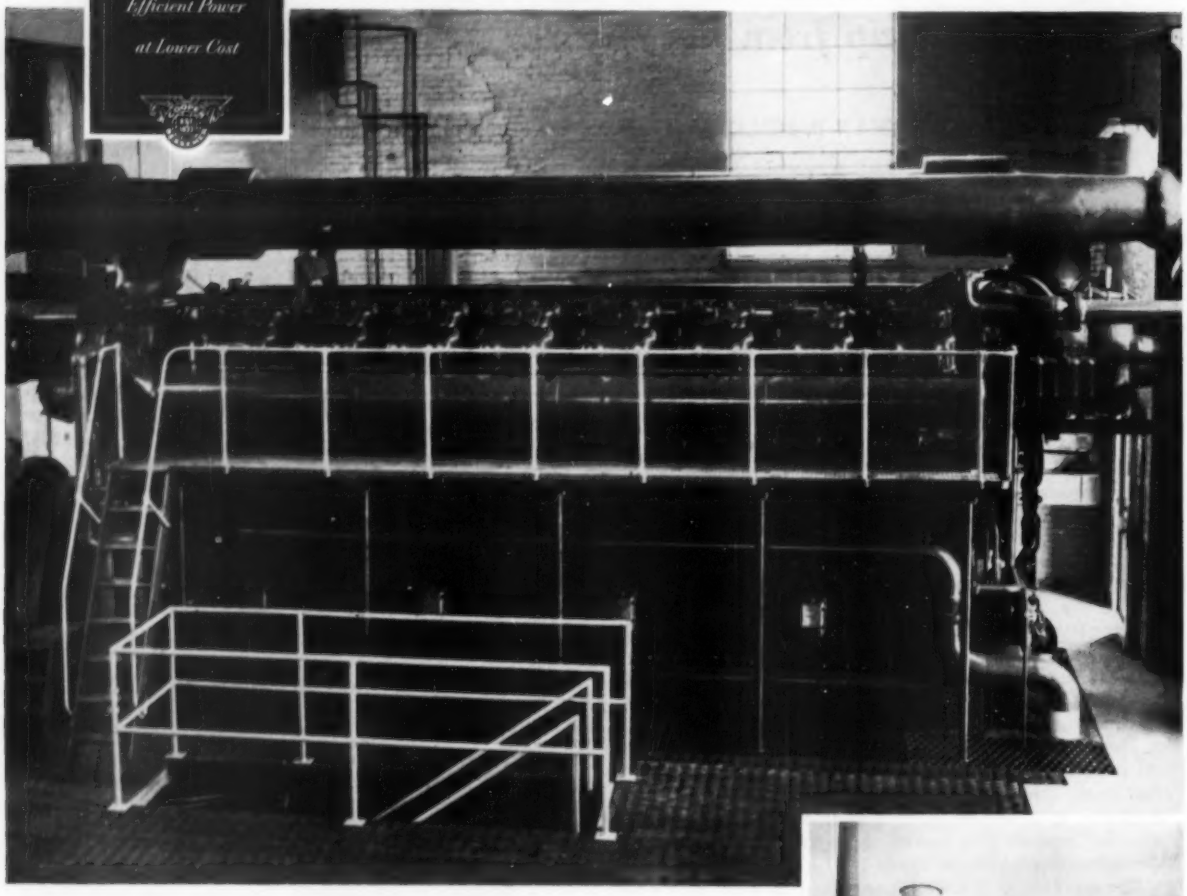
Damage Is Heavy

The Danville plant is one of the more efficiently operated plants in the Midwest. However, a small, coal-burning heater apparently ignited the sewage vapors. The sewer was vented at three points: a large open diversion and storm-water overflow box about 1,000 feet from the plant, a manhole located a short distance away, and a partially covered trough between the destroyed structure and the main building. The explosions carried back to the diversion box and damaged the sluice-gate structure so that it could not be closed. It also lifted two heavy iron manhole lids covered with a foot of earth. One of the covers traveled 27 feet.

Chief Sanitary Engineer C. W. Klassen, of the Illinois Department of Public Health, commented hopefully in the department's publication, *The Digester*, that the explosion may prompt other superintendents to investigate the possibilities of explosive materials entering the sewer system. If a city has no restrictions against discharge of objectionable wastes, he urged that a restrictive ordinance be passed assessing stiff penalties against any violator.

Another Example of Efficient Power at Lower Cost

There's a lot of dependable horsepower packed in this 16-cylinder turbocharged Cooper-Bessemer LSV Gas-Diesel. In operation at the Princeton, Illinois municipal power plant, this unit delivers 3,600 hp at 327 rpm.



How Cooper-Bessemer Solved A "Growing" Problem at Princeton Municipal

• Faced with growing power demands and insufficient capacity, Princeton, Illinois installed a 3,600 hp Cooper-Bessemer Gas-Diesel engine to boost generating facilities in their municipal power plant.

Selection of this engine was based primarily on three important Cooper-Bessemer advantages. First was extreme flexibility for continued, low-cost power generation. With the supply of natural gas limited during certain months, the engine can easily be switched to straight diesel fuel or any fuel combination as supply dictates.

Compactness of the LSV made it ideally suited for space already available in the Princeton plant . . . no need for additional construction. Finally, the 16-cylinder LSV offered top operating economy with maximum efficiency and minimum maintenance.

This kind of all-around efficiency and economy is ready to meet *your* particular needs, too. For complete information, contact the Cooper-Bessemer office nearest you.

MOUNT VERNON, OHIO
COOPER-BESSEMER
GROVE CITY, PENNA.

New York City • Seattle, Wash. • Bradford, Pa. • Chicago, Ill. Houston, Dallas, Greggton, Pampa and Odessa, Texas Washington, D. C. • Shreveport, La. • San Francisco, Los Angeles, Calif. • St. Louis, Mo. • Gloucester, Mass. • New Orleans, La. • Tulsa, Okla. • Cooper-Bessemer of Canada Ltd., Edmonton, Alberta—Halifax, Nova Scotia.

DIESELS • GAS ENGINES • GAS-DIESELS • ENGINE-DRIVEN AND MOTOR-DRIVEN COMPRESSORS

Modern Water Rates

PART XII

Public Fire-Protection Charges

FIRE-protection charges represent one of those added deluxe features of water-works financing that unfortunately produce annoyance and confusion in the minds of the municipal official and general public alike. The average citizen understands water rates that pay for an agreed volume of water delivered. But he becomes bewildered with charges for water that he does not use, except in a great emergency.

Fire-protection charges represent payment for the right to use an excessive quantity of water should the calamity of a fire arise. For an intangible commodity like protection, both the city and the customer requesting special protection through individual fire lines arrive at the charge only after lengthy negotiations with the utility.

The water utilities generally divide the charges into "public" and "private" classifications. Thus, the utility often will set a higher rate for fire-fighting protection to a private industry than it will to a municipality. The better bargaining position of the municipality presumably accounts for this difference.

This discussion will direct attention to current practice for fire-protection charges made to municipalities, otherwise known as public fire-protection charges. The May issue will discuss private fire-protection charges.

Analysis of Rates

Of the 110 sets of water rates surveyed thus far in the current series, only 30 make a charge for public fire protection. Of these, 13 are used by private companies; three by public authorities or districts serving a number of municipally owned systems. Of the remaining 14, at least three restrict these charges to areas outside the city limits.

Most privately-owned utilities make these fire-protection charges, whereas cities owning their own systems show only casual interest in them. One should note that the privately-owned utility pays taxes to the municipality it serves while the municipally owned utility generally does not. A privately owned water company must also pay a dividend to its stockholders—an obligation that a municipally owned utility does not have.

Therefore, should a municipally-owned utility use a public fire-protection charge, it ought then to return to the municipality the equivalent of property taxes paid by a private company. Furthermore, one may properly consider the city itself to be the stockholder of its municipally-owned water utility. It is then not beyond sound logic for a water utility to return to the city's general fund a sum representing the reasonable dividend that a private company would have to pay to its stockholders.

Obviously, these returns become simply a bookkeeping arrangement for the city transferring money back and forth between the Water Department and the General Fund. Most cities choose not to complicate their water rates with these charges.

When the charges are made, they should pay for the additional capacity and equipment built into a system that qualifies it to provide adequate fire protection. In most cases, a system large enough to meet domestic and industrial water requirements can be much smaller than a system that must be adequate to meet fire protection requirements. Pumping capacities can be smaller, storage may be cut, mains need not be so large, and, of course, hydrants and valves will not be needed. In certain areas, the load placed by air conditioning and lawn sprinkling is changing this situation, and is causing water works men to review their rates to discover ways of paying for the new and expensive peak demand.

Calculation of Charges

Calculation of public fire-protection charges must be based on conditions in each individual municipality. It should incorporate an appraisal of the system, isolating that portion constructed for the purpose of fire-protection only. The water-works industry has developed certain shortcuts to these calculations. Most of these however, are based on the assumption that the cost of the mains is proportionate to the size, but construction figures prove this untrue. Most of these formulae recommend fire-protection charges that are far greater than the public will accept.

Additional Charges

Of the fire-protection charges made in 30 cities listed in the series, all but two make a unit charge for each fire hydrant located in the city, since these are an easy measure of fire-protection adequacy. Two of them make an additional charge per inch of diameter of pipe, per foot of main installed. These charges are as follows:

	Annual Charges	
	Per hydrant	*Per inch-foot*
Passaic Valley Water Commission (N. J.)	$10	$0.0068
Summit, N. J. (private company)	15	0.002545

The remaining charges range from a low of $4 per hydrant per year (Waukegan, Ill.) to $114 per hydrant per year (Bucyrus, Ohio), both municipally owned systems. The hydrant charges per year range as follows:

Annual Charge (per hydrant)	*Water Utilities*
$75 and higher	4
50 to 75	5
25 to 50	12
Below 25	7

Thus it is apparent that public fire-protection charges give rise to the following conclusions:

1. They properly are charges that a private company can make against a municipality, particularly since it has to pay property taxes and earn dividends. Most private water companies would be glad if the public

IN WATER SYSTEMS

Installed cost plus performance is what counts!

That's why it pays to use Transite® Pressure Pipe with the Ring-Tite® Coupling

FOR THE contractor who installs it . . . for the engineer who selects it . . . for the taxpayer who pays for it . . . Transite Pressure Pipe with the new Ring-Tite Coupling meets every requirement. For example . . .

Installed Cost is Lower—Contractors everywhere have found that Transite's light weight, easy handling and fast, accurate Ring-Tite Coupling simplify assembly and save time. May be installed even under difficult weather and terrain conditions. The Ring-Tite design automatically locks tight, forming a positive seal.

Performance is Higher—With Transite Pressure Pipe and the Ring-Tite Coupling, you can count on peak performance year after year because of such engineering advantages as these: *Lasting* strength because of Transite's asbestos-cement, a strong durable material, highly resistant to corrosion . . . *Designed* tightness with the rubber rings of the Ring-Tite Coupling . . . *Assured* flexibility with automatic end positioning within the joint . . . *Locked in the groove* . . . rings can't blow out.

For further information about Transite Pressure Pipe and Ring-Tite Coupling, write to Johns-Manville, Box 60, New York 16, N. Y.

JM

Johns-Manville TRANSITE PRESSURE PIPE

WITH NEW RING-TITE COUPLING

fire-service charges were large enough to counterbalance the cost of property taxes paid.

2. They are of less value to municipally-owned systems confined within the city limits. When a municipally-owned water system must serve a suburban area beyond its limits, it properly can and should make these fire-protection charges.

3. The most popular way of making the charges is to place them on the basis of each hydrant served. A few rates are based both on a charge per hydrant and a charge per inch of diameter of water main per foot of pipe. This overcomes the practice of not installing hydrants because of the added hydrant charges that would otherwise be needed.

EDITORIAL NOTE: For further analysis of this subject, the editors suggest reference to a paper delivered at last year's annual meeting of the New England Water Works Association entitled, "Determination of Charges for Public Fire Protection," by D. A. Root and Thomas R. Camp, of Camp, Dresser & McKee, consulting engineers, 6 Beacon St., Boston 8, Mass.

HADDON TOWNSHIP, N. J.
(Westmount 7, N. J.)
Rates Per Quarter

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 1,330	$0.27
Excess	.245

Miscellaneous Regulations

1. A service charge is made on ⅝-inch meters of $1.80 per quarter; larger meters on application.
2. Minimum charge is $4.50 per quarter.

General Data

Population served	9,000
Services (100% metered)	2,500
Hydrants	140
Treatment—Calgon, chlorine, filters	
Storage facilities—standpipe, 90,000 gallons	
Average demand	0.7 mgd
Plant capacity	2.0 mgd

Typical Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$5.04
15,000	2,000	6.95
30,000	4,000	9.85

Remarks

1. Water is supplied free to churches and other charitable institutions.
2. Water Department owns all meters; places them n the building occupied by the users.
3. The service charge has been raised 75 cents per quarter in recent years. This is the only change which has been made, and it may be revoked.

WARREN WOOD
Superintendent

OAK PARK, ILL.
Small-User Rates Per Quarter

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 9,000	min.
Excess	$0.36

Large-User Rates Per Month

From 100,000 to 200,000	.35
Next 400,000	.32
" 400,000	.30
Excess	.27

Miscellaneous Regulations

1. Small users are those who use less than 100,000 gallons per month.
2. Quarterly minimum for small users is $5.24.
3. A 10% penalty is added to bills not paid within 10 days.

General Data

Population served	65,000
Services (100% metered)	12,446
Hydrants	1,126
Valves	1,007
Miles of mains	109
Supply—from Chicago system	
Treatment—chlorination	
Storage facilities—covered reservoirs, 5,000,000 gallons	
Average demand	6 mgd
Plant capacity	24 mgd

Typical Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$3.24
15,000	2,000	5.40
30,000	4,000	10.80

Remarks

1. Village distributes no water free except for fire protection. Excess water funds are diverted to general fund.
2. Water user owns the meter; placed in his building.
3. Bills are prepared on National Cash Register equipment.
4. Rates have been decreased 10% in recent years.

R. H. MCLEAN
Office Manager

PANA, ILL.
Rates Bimonthly

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 7,000	$0.60
Next 33,000	.45
" 460,000	.17
" 500,000	.13
" 4,000,000	.12
Excess	.11

Miscellaneous Regulations

1. Penalty charge of 10% is added to water and sewer bill if paid after the tenth of the month.
2. Lawn sprinkling and car washing are prohibited during summer water shortages. However, air conditioners are not restricted.
3. Water users outside the city pay $1 additional charge per month.
4. Churches, library, hospital, community house, and parochial school receive water free.

General Data

Population served	6,700
Services (100% metered)	2,150
Hydrants	145
Miles of mains	22
Supply—Lake Pana, 1,000,000 gallons	
Storage facilities—standpipe, 240,000 gallons.	
Treatment—filtration	
Average demand	1½ to 2 mgd

Typical Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
6,000	800	$3.60
10,000	1,333	6.00
20,000	2,666	12.00

Remarks

1. Rates were increased slightly in January 1951.
2. City furnishes meters ¾" in size, but requires $10 deposit. The user pays for larger meters.

R. L. BOLDING, *City Treasurer*
Ex Officio Water Commissioner

INGLEWOOD, CALIF.
Rates Bimonthly

Size of Meter (in inches)	*Minimum Charges* In City	Outside City
⅝ and ¾	$3.00	$4.80
1	3.60	5.76
1½	4.90	7.84
2	6.20	9.92
3	7.60	12.16
4	10.50	16.80
6	16.00	25.00

Volume of Water (in cubic feet)	*Quantity Rates* (per 100 cubic feet)	
First 1,400	$3.00 min.	$4.80
Next 2,600	.16	.256
Excess	.11	.176

Private Fire-Service Bimonthly

Sprinklers (inch-size)		
2	$2.20	$3.50
3	3.40	5.45
4	4.50	7.20
6	9.00	14.40
8	14.00	22.40
10	20.00	.....
Hydrants	.50	.....

General Data

Population served	50,436
Services (100% metered)	13,985
Hydrants	980
Valves	2,611
Miles of mains	134
Supply—wells	
Treatment—chlorination	
Storage facilities—standpipes, 600,000 gallons covered reservoirs, 19,000,000 gallons	
Average demand	7.4 mgd

Typical Costs Bimonthly

Gallons	*Cubic Feet*	*Costs*
6,000	800	$3.00
10,000	1,333	5.00
20,000	2,667	5.08

Remarks

1. City distributes no water free except to other city departments. No water funds are diverted to other uses.
2. Department owns all meters; places them in meter box at the lot line.
3. Bills are prepared on Sundstrand billing machine.
4. Present rates were established July 1952, representing a 25% raise.

H. W. STOKES
Assistant Director

SALUDA, S. C.

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 2,500	min.
Next 2,500	$0.40
" 5,000	.35
" 15,000	.30
Excess	.25

Miscellaneous Regulations

1. Minimum charge is $1.39.
2. Bills are discounted 10% if paid promptly.

General Data

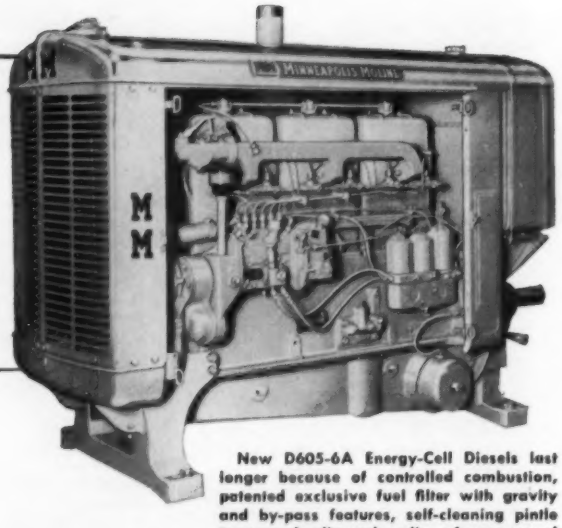
Population served	1,500

(Continued on page 155)

WHY IT PAYS TO OWN INDUSTRIAL DIESELS WITH REMOVABLE CYLINDER BLOCKS AND HEADS

New MM diesels were developed with *energy-cells* to make them last longer, do more and go farther with less down-time and maintenance.

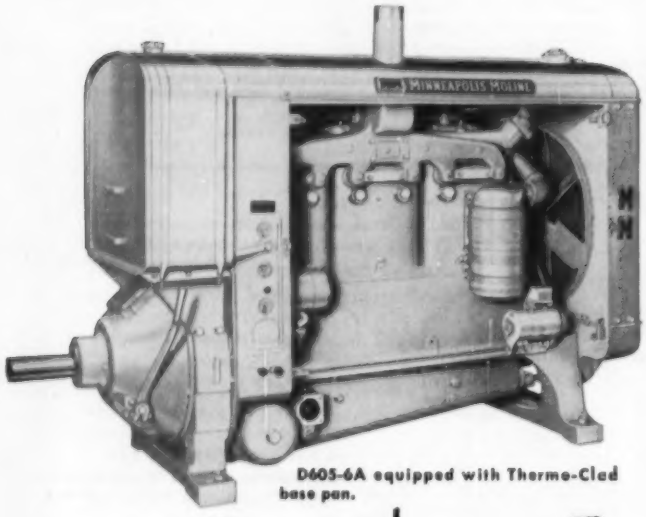
To provide owners with lower cost maintenance when necessary MM diesels are the most advanced and soundly engineered because the cylinder blocks are cast in pairs separate from the crankcase.



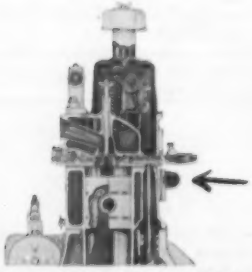
New D605-6A Energy-Cell Diesels last longer because of controlled combustion, patented exclusive fuel filter with gravity and by-pass features, self-cleaning pintle type nozzle, directed cooling of area around combustion chambers.

YOU GET THESE ADDED ADVANTAGES . . .

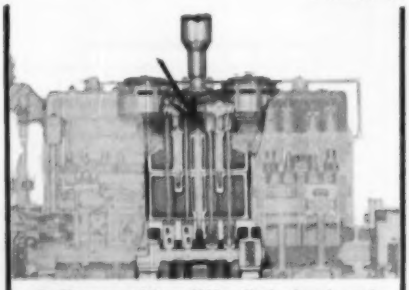
1. Ease of maintenance and low cost emergency service because paired cylinder blocks, pistons, and rods can be removed as a unit by one man.
2. Prolonged time between overhauls by use of close-grain cast iron that provides best cylinder lubrication for reduced wear.
3. Less service due to minimum distortion as MM cylinder heads, cylinder blocks and crankcase are virtually strapped together by full-length steel studs anchored in the main bearing bulkheads. (Transmits combustion pressure to heavy crankcase that has extra depth below center line of crankshaft.)
4. Efficient operation obtained by uniform cylinder expansion . . . the result of controlled cooling and long oil-cooled cylinder wall skirts below ring travel area.
5. "New engine" performance at extremely nominal cost can be obtained right in the field without special tools using factory matched cylinder blocks, pistons, pins, and rings. (Blocks are dowelled to crankcase to assure bore is square with crankshaft and pistons are precision fit to bore . . . equivalent to a factory job.)
6. Lower initial cost stems from high production parts by casting cylinder blocks in pairs separate from the crankcase.



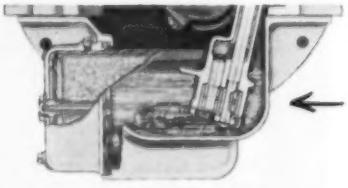
D605-6A equipped with Thermo-Clad base pan.



1. Cylinder head and block assembly shows coolant entrance at hottest point first and extra long skirt wall construction.



2. Close-up of how MM cylinder heads and blocks and crankcase are tied into a single rigid unit with long studs.



3. A D283 feature is extra large oil filter enclosed in base pan, floating-screen oil pump intake, and pump located in bottom of base pan.

Optional Thermo-clad water-blanketed base pans for all units also have oil filter included to give more effective filtering.

INDUSTRIAL MINNEAPOLIS MOLINE MODERN MACHINERY DIVISION

MINNEAPOLIS-MOLINE

MINNEAPOLIS 1, MINNESOTA

Spray more per day with the

Committee Explores Urban Renewal Program

FHA Commissioner N. P. Mason discusses with an industry committee the government's new urban renewal program. *Seated, left to right*: W. S. Dayton, Chairman, Build America Better Council, National Assn. of Real Estate Boards, Bayside, N. Y.; A. P. Wilcox, Chairman, Realtors Washington Committee, NAREB, Boston, Mass.; J. C. Williamson, Secretary-Counsel, Realtors Washington Committee, NAREB, Washington, D. C.; A. W. Jarchow, Director of the Appraisal and Mortgage Risk Div., FHA; F. J. Meistrell, General Counsel, FHA; Norman P. Mason, Commissioner, FHA; C. E. Sigety, Deputy Commissioner, FHA; D. C. Slipher, Director, Field Service, American Council to Improve Our Neighborhoods, Inc., New York, N. Y.; J. B. McGrath, Legislative Director, National Assn. of Home Builders, Washington, D. C. *Standing, left to right*: M. L. Colean, Consulting Economist, Mortgage Bankers Assn., Washington, D. C.; C. P. Stewart, Director of Public Relations, NAREB, Washington, D. C.; N. S. Keith, Housing Consultant, Washington, D. C.; W. B. Mason, Urban Renewal Officer, FHA; C. A. Bowser, Asst. Commissioner for Technical Standards, FHA; W. A. Clarke, immediate Past President, Mortgage Bankers Assn., Philadelphia, Pa.; S. E. Neel, General Counsel, MBA, Washington, D. C.; A. F. Thornton, Director, Research and Statistics Div., FHA; J. W. Rouse, MBA, Baltimore, Md.; W. S. Harps, President, Washington Assn. of Real Estate Brokers, Washington, D. C.

COMMISSIONER Norman P. Mason of the Federal Housing Administration met on March 2 with a 12-man industry advisory committee to explore ways FHA can serve the people most effectively in connection with the government's new urban renewal program.

Under the program, as previously reported in THE AMERICAN CITY, the FHA, with other constituent agencies of the Housing and Home Finance Agency, has new authority to help communities to preserve and restore property values in their older neighborhoods.

For the first time, FHA benefits are available for new constructions and rehabilitation of existing structures in neighborhoods threatened by slums and for the building of new homes to house families displaced as a result of government action.

Commissioner Mason said the committee members discussed operational and policy matters as well as technical underwriting considerations. He added that another meeting is planned soon with representatives of consumer interest groups at which similar subjects will be under discussion.

Advice from both groups will be considered, he explained, as the FHA spells out its procedures for administering its portion of the urban renewal program.

Commissioner Mason, and two other members of the industry advisory committee, Miles L. Colean and James W. Rouse, were members of the President's Advisory Committee on Government Housing Policies and Programs. It was this committee which recommended the new urban renewal program that was enacted into law last year.

10 Workable Programs Approved by HHFA

THE February 28 *Newsletter* of the National Association of Housing and Redevelopment Officials reports that, as of February 21, ten "workable programs" of Urban Renewal under the 1954 Housing Act had been approved by the Housing and Home Finance Agency. The cities submitting these programs were:

Clarkesville, Tenn.	Portsmouth, N. H.
Somerville, Mass.	Chicago Heights, Ill.
Chicago, Ill.	Minneapolis, Minn.
Lewisburg, Tenn.	Philadelphia, Pa.
Eufaula, Ala.	New Orleans, La.

Eight cities had submitted applications by January 31 but had not yet had them approved. These cities are:

Gallatin, Tenn.	Scranton, Pa.
Baltimore, Md.	Morristown, N. J.
Los Angeles, Calif.	Kansas City, Mo.
Wilmington, Del.	Mobile, Ala.

Readers of THE AMERICAN CITY will find on pages 141-143 of the January 1955 issue an article outlining the basic HHFA requirements for workable programs and how these requirements were met in Clarkesville, Tenn., the first city to qualify for this new type of government housing assistance.

Spray more per day with the John BEAN 100-ROTOMIST

. . . because of these EXCLUSIVE features:

GREATEST "RATE OF WORK" CAPACITY OF ANY MIST SPRAYER

STRAIGHT-THROUGH AIR DISCHARGE WITH AXIAL FLOW FAN

HYDRAULIC TURN TABLE AND AIRPLANE-TYPE CONTROLS

HIGH PRESSURE PUMP WITH "SAPPHITE" LIFE-TIME CYLINDERS

Both the 100 and the medium capacity 75-Rotomist (shown above) come in trailer-mounted models as well as for truck-mounting. Get full details today.

Providing the greatest "rate of work" capacity on the market, the John Bean 100-Rotomist gives you 28,000 cubic feet of air volume, spray delivery to the whirl-mist nozzle at 490 pounds pressure and 100-gallon tank capacity. In a day's time, you spray more trees . . . sanitize larger areas . . . more effectively. A Rotomist works fast, yet assures thorough coverage and penetration with minimum use of spray materials.

Operators like the Rotomist's effortless hydraulic 360° rotation and full 110° vertical pivoting . . . it's spring-filled seat and back rest. Budget-wise owners like its fully enclosed transmission and plunger-type pump, both with positive lubrication . . . among the many outstanding features that mean trouble-free operation.

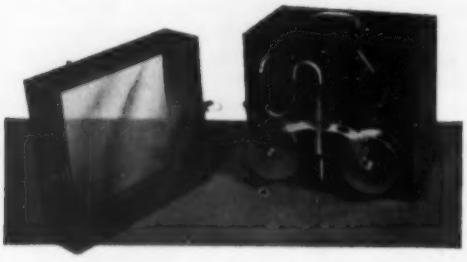
Write for details on a new Rotomist use — leaf windrowing!

Write for new 1955 Rotomist Catalog

fmc **John BEAN** LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

How Much H_2S Concentration in Your Community's Air?



You can measure it with the

A.I.S.I.

Hydrogen Sulfide Sampler

The hydrogen sulfide sampler was designed to provide a device that could continuously monitor atmosphere having a house paint blackening potential. Its sensitivity is so great, however, that it also indicates much lower concentrations than believed significant in paint blackening.

It measures H_2S concentration as low as one part per billion parts of air, and can be regulated to record at intervals of ½ hour, 1 hour or 2 hours as desired. For descriptive literature and prices write to:

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ANCHORED "FLOATING BRIDGE"

On a unique floating bridge, traffic swiftly crosses Seattle's beautiful Lake Washington. Twenty-five huge concrete sections comprise the "float", each held in place by two sixty-five-ton anchors. Nearly two miles long, it is the largest thing afloat.

In many interesting locations you'll find ***FERRO*** signs . . . visible day or night; permanent porcelain enamel fused on finest steel.

On any street, road or highway, ***FERRO*** is the sign of good government. For full details, write:

FERRO ENAMELING CO.

1100 Fifty-Seventh Avenue Oakland 21, California

City Manager Appointments & News

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

Robert H. McManus
Rome, N. Y.

M. Victor Dubrule
Malartic, Que.

Robert H. Shelton
Santa Barbara, Calif.

John C. O'Keefe
San Bruno, Calif.

Glen Varenhorst
Hays, Kans.

The first manager of Elberton, Ga., is GEORGE H. AULL, JR., budget officer at Greensboro, N. C.

Lititz, Pa., appointed DAVID J. BAUER, staff member of Public Administration Service, Chicago, to succeed Orville F. Over, as city manager.

WALTER C. BROWN, former manager of Chadron, Nebr., has been appointed to succeed E. B. Tucker as city manager of Glendale, Ariz., not Glendale, Calif., as erroneously reported in the February issue of this magazine.

HOLLIS CAGLE, public works director at Childress, Texas, was appointed city manager of Tulia, Texas, succeeding J. B. Davidson.

Suffolk, Va., has appointed JAMES C. CAUSEY, JR., one-time manager of Suffolk, to succeed E. N. Wilkinson as city manager.

H. E. DICKERSON, city manager of Laurinburg, N. C., was appointed manager of Statesville, N. C., succeeding C. L. Lineback.

Sewickley, Pa., appointed RAYMOND I. HOWE, city manager, succeeding C. D. Decker (deceased).

The first manager of Edina, Minn., is WARREN C. HYDE, city manager of Janesville, Wis.

Brownfield, Texas, has appointed E. D. JONES, their former general superintendent, as first city manager.

ERNEST P. KIDD, manager of Sylvania, Ga., was appointed city manager of Beaufort, S. C., succeeding R. Y. Phillips.

CECIL O. LANCASTER left the managership of Wells, Maine, to succeed Ervin L. Welch as city manager of Mansfield, Mass.

North Sacramento, Calif., has appointed ERNEST D. LINDSAY, former manager of Durango, Colo., succeeding Walter E. Butler.

The first manager of Rahway, N. J., will be CLIFFORD W. O'KEY, the assistant manager at Milford, Conn.

MELVIN L. REESE, director of the Renegotiation Board, Washington, D. C., was appointed county manager of Montgomery County, Md.

Belle Glade, Fla., has appointed CLARENCE E. ROBINSON, manager of Fairfield, Maine, to succeed Tom R. Carle as city manager.

The first manager of Paris, Tenn., will be PHILIP B. WATSON, Mayor of Paris.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association

The Growing Profession of Managing Cities

EVIDENCE of a growing trend toward professional careers in municipal management is presented in the accompanying table. More than half the 220 city manager appointees in 1954 had previously been managers or administrative assistants to managers in council-manager cities. Adding to this number the city managers who came from other public administrative positions, we find that 82% of the total had governmental backgrounds.

The 1955 issue of the *Municipal Year Book*,* in which this table is to appear, states that the trend toward the appointment of men with public administration training and experience is partly the result of careful selection of capable young men and the provision of graduate training in public administration by a number of universities.

* *The Municipal Year Book*, published by the International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill., will be available late in May.

COMPARISON OF CITY-MANAGER APPOINTMENTS

	Ten-Year Period 1940-49 Incl.		For 1953		For 1954	
	No.	%	No.	%	No.	%
GOVERNMENTAL:						
Manager promotions from other cities	277	18%	71	28%	75	34%
Former managers accepting appointments	177	11	27	10	20	9
Administrative assistants and asst. managers	69	4	52	20	28	13
Public administration specialists	13	1	4	2	8	4
Other public administrative positions:						
Engineers	168	11	9	4	14	6
Finance officers and clerks	109	7	15	6	8	4
Other city department heads	86	5	6	6	23	10
Federal, state, and county	171	11	16	2	8	4
Miscellaneous	71	5	16	6	4	2
NONGOVERNMENTAL:						
Business and industry	152	10	14	5	16	7
Engineering	51	3	6	2	2	1
Miscellaneous	34	2	7	3	4	2
UNKNOWN:	186	12	15	6	10	4
Total appointments	1,564	100	258	100	220	100
Appointments from outside city	803		181		156	
Per cent of outside appointments	58%		76%		75%	

FOR DORMANT AND FOLIAR PEST CONTROL . . .

Low-cost tree protection with . . . Oliver Iron Age mist sprayer

Here is the answer to low-cost control of dormant and foliar tree pests as well as fly and mosquito control—model 125 Oliver Iron Age mist sprayer!

This sprayer injects mix into the center of a high-velocity air stream traveling 90 to 125 miles per hour. The air blast produces an extremely fine mist that gives a lasting, thorough coverage that will easily reach the highest shade trees.

Both wettable powders and emulsified liquids may be used. Constant mechanical agitation is provided by an efficient 5-gallon-per-minute pump. This pump may also be used with a hose and gun assembly to apply insecticides to inaccessible areas.

Power for the air blast is supplied by a 20.5 h.p. engine that drives an axial flow fan at 87% efficiency. Fan delivers from 6,000 to 11,000 cubic feet of air per minute. Turret rotates 360° for full control of air blast.

Make a note to see this sprayer. Note, too, the many advantages of the Oliver Super 55 tractor shown above with the mist sprayer. You'll be glad you looked into these quality Oliver products. See your Oliver Industrial Distributor.

THE OLIVER CORPORATION
400 West Madison Street, Chicago 6, Illinois

OLIVER IRON AGE

a complete line of industrial wheel and crawler tractors

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Minimum Lot Area and Minimum Building Size Regulations

CONNECTICUT. *De Mars* v. *Zoning Commission of Town of Bolton*, 109 Atlantic (2d) 876 (Court of Common Pleas, August 8, 1954).

In this case, the local zoning ordinance contained a series of regulations (based on a sliding scale) on minimum lot area per dwelling unit in different districts, and another series of regulations on minimum floor area per dwelling unit, varying according to the number of stories. This lower Court treated the two sets of requirements as essentially similar; in fact, the transition in the discussion from one to the other occurred in the middle of a paragraph. Both were upheld on the ground that there were a lot of recent cases upholding similar regulations. The analysis did not get much further than that.

Lionshead Lake v. *Wayne Township*, 10 New Jersey 165, 89 Atlantic (2d) 693 (1952) appeal dismissed, 344 U. S. 919 (1953),* thus appears to enjoy considerable prestige among *nisi prius* courts. This more recent minimum-building-size opinion † cannot be said to make any contribution whatever to the discussion of that problem. Even a moment's thought will indicate that the problems of density control, involved in minimum lot area regulations, are completely different from the problems of snob zoning, quasiesthetic zoning, and local taxation involved in minimum-building-size regulations.

* See discussion in THE AMERICAN CITY for February 1951, p. 129; October 1951, p. 130; November 1951, p. 133.

† Compare *Flower Hill Building Corporation* v. *Village of Flower Hill*, 199 N. Y. Miscellaneous 344, 100 N. Y. Supplement (2d) 903 (Supreme [lower] Court, 1950), discussed in THE AMERICAN CITY for March 1951, p. 129.

Missionary Priests Ruled Single Family in Residence District Case

WISCONSIN. *Missionaries of Our Lady of La Salette* v. *Village of Whitefish Bay*, 66 North Western (2d) 627 (Supreme Court, November 9, 1954).

In this case, a group of Roman Catholic priests and lay brothers used a large house in a single-family district for their residence. All of their work as missionaries was done off the premises. The question arose whether this should be regarded as a single-family use, or as a convent, permitted only in another district.

The Court pointed out that the definition of a family included individuals not related to each other by blood and marriage, and emphasized that the priests would use the dwelling purely as a residence, with a single set of housekeeping facilities, and would do all their work elsewhere. It was emphasized that they were not living there in seclusion or retirement.

Convalescent Home in Old Mansion—Spot Zoning

IOWA. *Keller* v. *City of Council Bluffs*, 66 North Western (2d) 113 (Supreme Court, September 21, 1954).

In this case, an old sixteen-room mansion was used as a nonconforming convalescent home in an A Residential District; and the three lots on which the building was located, with a total area of about 125 feet square, were changed to a Class B Residential District, where such an establishment was permitted. In the opinion, the Court held that this did not represent spot zoning. It was emphasized that this was the only economic use of the property, and that, before such a use was instituted, the property was running down and becoming an eyesore to the entire neighborhood. The Court then went on with a detailed discussion of why the zoning change did not represent spot zoning.

Rezoning to Residential—Effect of New Park Nearby

ILLINOIS. *People* ex rel. *Alco Deree Co.* v. *City of Chicago*, 118 North Eastern (2d) 20 (Supreme Court, March 17, 1954).

In this case, a stretch of California Avenue in the northern part of Chicago was partly developed with factory and other non-residential buildings, and partly vacant. This case involved an application to build a small metal-processing factory, and warehouse, on a largely vacant lot, which was within the area recently rezoned to a residence district. A new 80-acre park had just been developed across the street on the site of former clay pits.* In this situation, the Court held that the existence of the new park was sufficient to justify rezoning of the area for residential development.

> "The outstanding fact with respect to the character of the property in the area of plaintiff's property is the increasingly dominating influence of the large area dedicated to public park purposes. The improvement of this eighty-acre tract is near completion, and its playgrounds are already being used by children living in the neighborhood. With the improvement in progress it is apparent that the park area will shortly dominate, if it does not do so already, the character of the property immediately to the west. The presence of the park will necessarily add to the attractiveness of plaintiff's vacant property for apartment use. That such attraction was lacking when the park property was an old clay pit, is immaterial. So large a park will naturally draw young children to its playgrounds, older boys and girls to its tennis courts, and residents of the entire area to its other facilities. If plaintiff's property is used for commercial purposes, the danger to persons going to and from the park from increased truck and passenger vehicle traffic incident to commercial expansion such as plaintiff contemplates would obviously be increased. A consideration of all the facts and circumstances impels the conclusion that the rezoning ordinance, to the extent plaintiff's vacant property is concerned, was not only reasonable but, because of the major improvement directly across the street, highly desirable."

This opinion is significant as representing a different approach from that in a large number of recent Illinois decisions upsetting zoning regulations in Chicago. For the Court explicitly rejected the proposition that the "highest and best use" of land is the sole test.

> "The highest and best use of property immediately involved is, however, but one factor to be considered in determining the validity of a zoning ordinance. Effect upon the value of other property must also be considered. Here there is evidence that the proposed use is the highest and best use of the property involved. There is also evidence that such a use would lessen values in the residential area to the west."

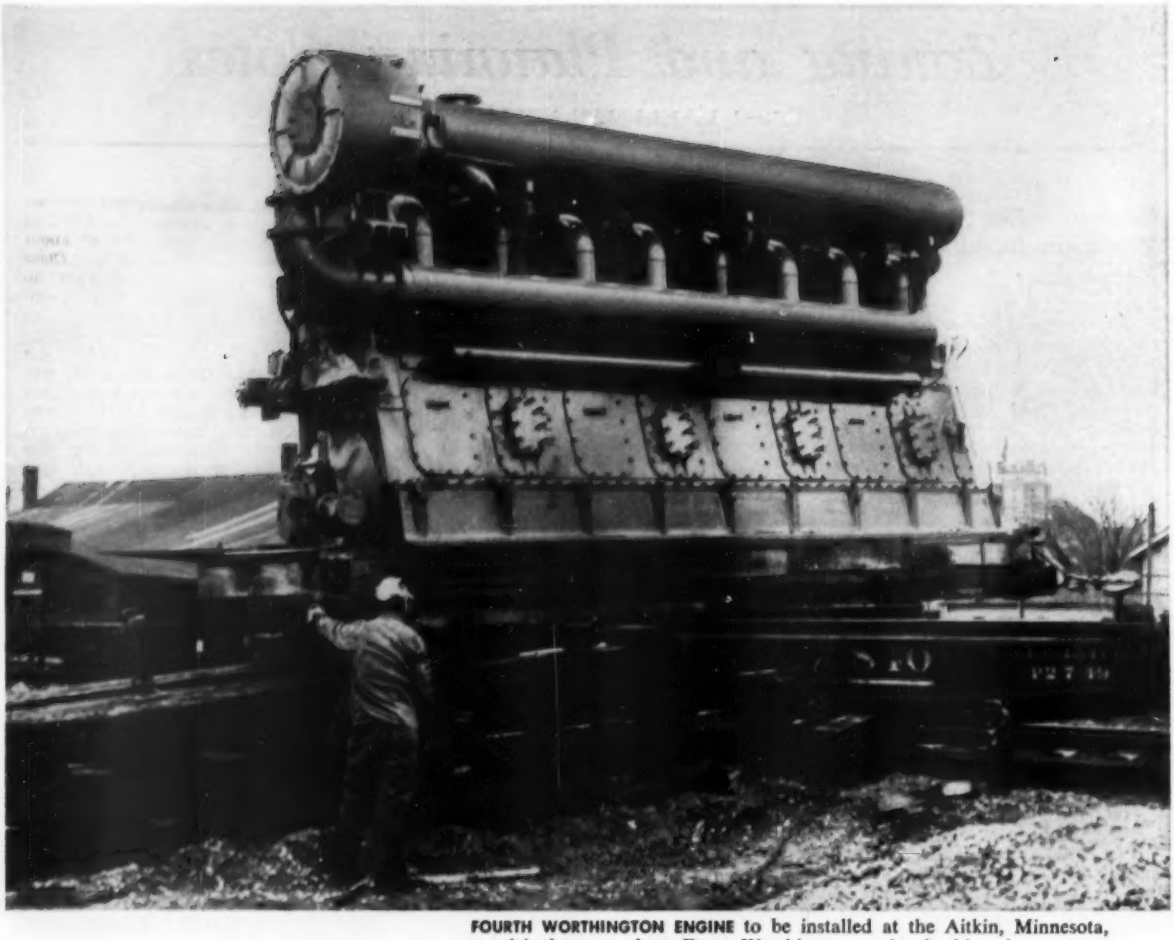
It is good news to hear an Illinois Court saying that use of this fancy (and confusing) phrase to refer to the most profitable use of land does not necessarily imply that such use must be permitted.

Finally, the Court emphasized the dangers that increased industrial traffic in the area would bring to children using the park. This is an unusually explicit recognition of what is in fact one of the most important factors in zoning.

> "Another factor important in the present case relates to the public welfare. Erection of a two-story factory building, as requested, would mean greatly increased truck and passenger vehicle traffic in and near the new factory. It appears that additional factories in the immediate vicinity of the park would create additional hazards and danger to the safety of persons availing themselves of the facilities of the park. The possibility of increased hazard to children going to and from the park cannot be ignored."

*This park included the tract involved in 2700 *Irving Park Building Corporation* v. *City of Chicago*, 395 Illinois 138, 69 North Eastern (2d) 827, a leading Illinois case on the invalidity of rezoning to residence, discussed in THE AMERICAN CITY for April, 1947, p. 127.

Modern Water Rates ... Next 200, each ... 12¢ | TIME-O-MATIC



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No field assembly problems here

When Aitkin, Minnesota, ordered its latest Worthington Diesel engine for its municipal power plant, Aitkin's engineers knew that they were going to get a complete, factory-tested power package, ready to be placed on foundations.

This new SEH-8 1760 hp supercharged Diesel brings the Worthington total at Aitkin to four engines. Repeat orders over a period of seventeen years make this a 100% Worthington installation, with the exception of two air-injection units used for stand-by service. Worthington's engineering help in piping and plant layout has also played an important part in increasing efficiency throughout the entire plant.

Power plant men everywhere agree that when you buy a heavy-duty engine that's completely assembled and tested before shipment, you'll save yourself a lot of unnecessary trouble. And you can rely on Worthington's skilled installation engineers to help you get the most out of your power plant.

Write for Bulletin S-500-B52A. Worthington Corporation, Engine Division, Section E.4.4, Buffalo, N.Y.

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WORTHINGTON

Economical Continuous Power — *Diesels, Oil and Dual Fuel, and Spark-Ignition Gas Engines, from 190 to 2100 bhp.*

Modern Water Rates

(Continued from page 147)

Services (100% metered)	575
Hydrants	83
Valves	98
Miles of Mains	6
Supply—river	
Treatment—rapid sand filters	
Storage facilities—elevated tank, 75,000 gallons	
covered reservoir, 200,000 gallons	
Average demand	0.15 mgd
Plant capacity	0.8 mgd

Typical Costs Per Month

(not discounted)

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.59
5,000	667	2.39
10,000	1,333	6.14

Remarks

1. City distributes no water free, nor does it divert water funds to other uses.
2. City owns all water meters; places them in a meter box at the lot line.
3. Water rates have increased 6% in recent years.

G. V. Setzler
Superintendent

PORTLAND, CONN.

Rates Per Month

Size of Meter (in inches)	*Minimum Charges*
⅝	$0.75
¾	1.00
1	1.50
1½	2.50
2	3.50
3	5.00
4	8.00
6	15.00

Volume of Water (in cubic feet)	*Quantity Charges* (per 100 cubic feet)
First 100	min.
Next 900	$0.25
" 1,000	.18
" 16,000	.15
Excess	.10

Fire-Protection Rates Per Year

Private	*Rates*
Per hydrant	
old style	$ 7.50
new style	10.00
Service Line (6-inch and over)	
per inch-foot	.007
Private	
Per hydrant	30.00
Automatic sprinklers	
First 100 or less	30.00
Next 200, each	.125
" " "	.0875
" " "	.075
" " "	.05
Excess	.02

General Data

Population served	4,300
Services (99% metered)	1,208
Hydrants	107
Miles of mains	29
Supply—wells	
reservoir, 66,000,000 gallons	
Treatment—chlorination and Calgon	
Storage facilities—standpipe, 500,000 gallons	
Average demand	0.3 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.50
5,000	667	2.25
10,000	1,333	3.54

Remarks

1. City charges for all water distributed; diverts no water funds to other uses.
2. City owns all water meters; places them in the building occupied by the user.
3. These rates were established in 1944 when the city adopted universal metering.

C. Joseph Seiferman
Superintendent

PIQUA, OHIO

Rates Per Month

Size of Meter (in inches)	*Minimum Charges*
⅝	$1.00
¾	1.25
1	1.50
1½	2.00
2	4.00
3	8.00
4	15.00
6	20.00

Volume of Water (in gallons)	*Quantity Charges* (per 1,000 gallons)
First 2,000	min.
Next 23,000	$0.25
" 225,000	.20
" 750,000	.175
" 1,000,000	.15
" 1,000,000	.125
Excess	.10

General Data

Population served	18,000
Services (100% metered)	5,100
Hydrants	500
Valves	500
Supply—river and lakes	
Treatment—soda-lime softening	

STEEL in stock
CERTIFIED QUALITY... QUICK DELIVERY
PRODUCTS: Carbon, Alloy & Stainless Steel Bars, Structurals, Plates, Sheets, Tubing Reinforcing, Babbitt, Machinery & Tools, etc.
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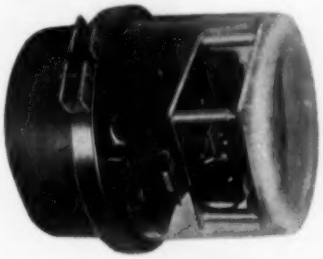
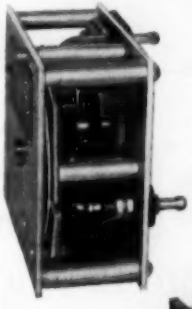
TIME-O-MATIC FLASHERS JACK MOUNTED

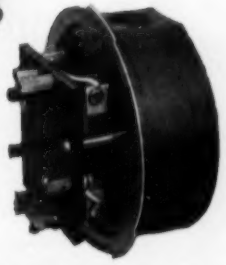


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC

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Danville, Illinois

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Even here

Recordak Microfilming saves time and dollars

Cost studies show that important savings can be made on many jobs where only a few items are transcribed from one set of records to another.

Making a written or typed description of checks, for example. Why waste a clerk's time? Why risk mistakes and omissions? With a Recordak Bantam Microfilmer, you can photograph 500 checks in a minute for just 7 cents—get a complete record instead of a partial one.

Applying the speed and economy of this truly amazing process to office routines is Recordak's business—has been for 27 years. Over 100 different types of business—thousands of concerns—are now using Recordak Microfilming to simplify jobs which are probably similar to some of yours.

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Recordak Bantam Microfilmer, one of 6 Recordak models designed for varying requirements.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—
and its application to government routines

Storage facilities—standpipe, 1,000,000 gallons
elevated tanks, 250,000 gallons
clear well, 500,000 gallons
Average demand ..... 3 mgd
Plant capacity ..... 5 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.25
5,000	667	1.75
10,000	1,333	3.00

Remarks

1. The department distributes no water free nor does the city divert water funds to other uses.
2. Meters belong to the Water Department; are placed in meter boxes at the property line.
3. Bills are prepared on National Cash Register billing equipment.
4. Present rates went into effect in 1933 and represent a 5% to 7% raise.

FRED HICKEY
Superintendent

EUTAW, ALA.
Rates Per Month

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 20,000	$0.50
Next 30,000	.40
" 50,000	.30

General Data

Population served 2,400
Services (100% metered) 675
Hydrants 54
Valves 35
Miles of mains 5
Supply—wells
Storage facilities—elevated tank, 100,000 gallons
Average demand ..... 0.09 mgd
Plant capacity ..... 1 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.50
5,000	667	2.50
10,000	1,333	5.00

Remarks

1. No water is delivered free to any service. No water funds are diverted to other uses.
2. City owns all meters; places them in a meter box at the lot line.
3. Rates have remained unchanged for many years.

T. M. FINLEY
Superintendent

FLORENCE, ORE.
Rates Per Month

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 200	$3.40
Next 100	1.05
" 100	1.00
" 100	.50
" 100	.25
" 1,400	.12
Excess	.08

Miscellaneous Regulations

1. Minimum charge is $3.40.
2. Rates for water furnished outside the city limits are 25% higher.

General Data

Population served 1,800
Services (97½% metered) 450
Hydrants 53
Valves 49
Miles of mains 6
Supply—lakes
Treatment—rapid sand filters
Storage facilities—elevated tank, 250,000 gallons
Average demand ..... 0.06 mgd
Plant capacity ..... 0.5 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$3.43
5,000	667	6.32
10,000	1,333	7.16

Remarks

1. City delivers no water free; diverts no water funds to other uses.
2. City owns all meters; places them in a meter box at the lot line.
3. Sodium fluoride is added as a dental health measure.
4. Present rates went into effect December 1950, representing a 55% increase.

W. G. DUNAVEN
Superintendent

CEDARTOWN, GA.
Rates Per Month

Size of Meter (in inches)	*Minimum Charges* Inside City	Outside City
⅝ and ¾	$2.00	$3.50
1	4.00	6.00
1¼	4.65	7.00
1½	5.35	8.00
1¾	7.30	10.00
2 or larger	13.35	20.00

Volume of Water (in cubic feet)	*Quantity Charges* (per 100 cubic feet) Inside City	Outside City
First 500	$0.40	$0.70
Next 1,500	.30	.45

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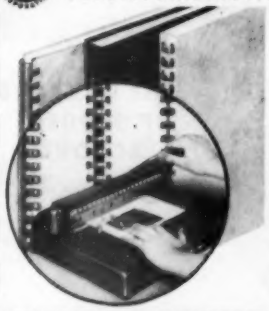

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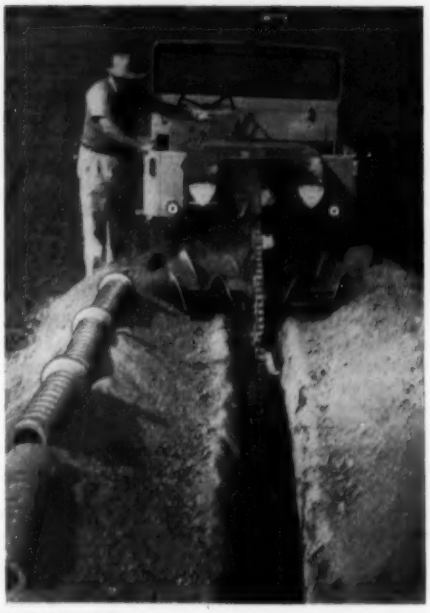

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THE WORLD'S MOST USEFUL VEHICLES

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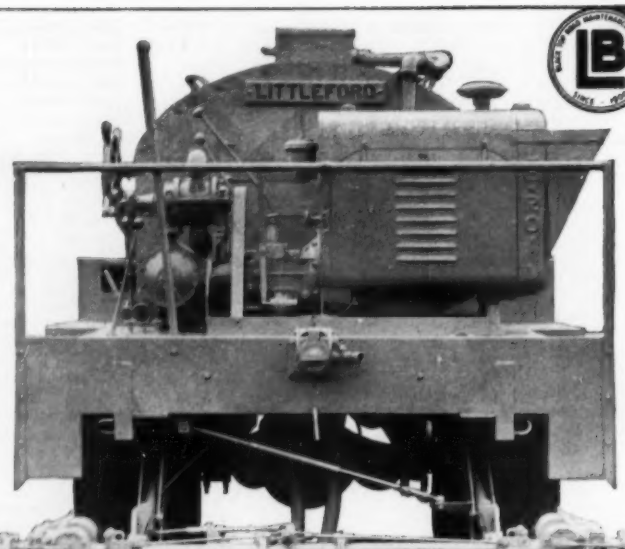

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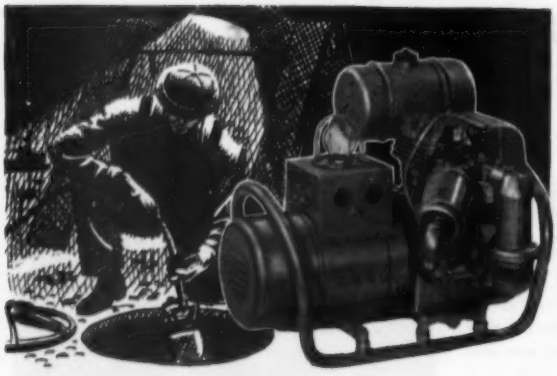
Spray . . . faster . . . easier . . . and cheaper
with Littleford "SPRAY MASTER" Bituminous Distributor



Handiest for light and power . . . a Fairbanks-Morse portable generator!

There are hundreds of emergency jobs where you can't run power lines, but where you can take a Fairbanks-Morse portable generator! For example — in manholes, on roofs, at pumping stations stopped by high-line failure; places where trucks need roadside service; when power failure jams crossing gates or disrupts traffic signals!

Handiest Fairbanks-Morse model for such emergencies is the 25P36. Available in 600-, 100- and 2500-watt capacities. Produces 115-volt AC current; single phase, 60 cycle. Manually started. The 2500-watt model weighs only 140 lb. Write Fairbanks, Morse & Co., Chicago 5, Ill.

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Big Beam AUTOMATIC EMERGENCY LIGHTS

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Big Beam Model 2ATW with storage battery and built-in charger that keeps battery fully charged at all times. Variety of models to choose from.

Sudden blackouts breed confusion, panic, property damage, bodily injury — even loss of life. You can have completely dependable protection against sudden blackouts by installing Big Beam automatic emergency lights. (Plug into any convenient lighting outlet.) Then whenever regular lights fail, your Big Beam will provide hours of bright, safe illumination.

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Model No. 211
1500-Foot Beam

Model No. 166 with
SEALED BEAM Bulb

Model No. 408F
Flare and Lantern

Write for Complete Information —

U-C LITE MFG. CO., 1063 W. Hubbard St., Chicago 22, Ill.
IN CANADA: Bernard Marks & Co. Ltd., 459 Church St., Toronto 5, Ont.

" 4,000	.....	.25	.30
" 4,000	.....	.20	.25
" 10,000	.....	.16	.16
Excess	.....	.12	.12

General Data

Population served	10,470
Services (100% metered)	3,900
Hydrants	213
Supply—springs	
Treatment—chlorination	
Storage facilities—standpipes, 1,760,000 gallons	
Average demand	1.5 mgd
Plant capacity	5.5 mgd

Typical Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$2.00
5,000	667	2.90
10,000	1,333	5.60

Remarks

1. City supplies water free to schools and orphanage. About 40% of the gross funds are diverted to the general fund.

2. Water Department owns all meters; places them in a meter box at the lot line.

3. Bills are processed on Burroughs automatic equipment.

4. Rates in the city have remained unchanged since 1948. Rates outside the city were established in April 1954.

L. W. WALLY
Superintendent

Open-Air Incinerator Design

(Continued from page 136)

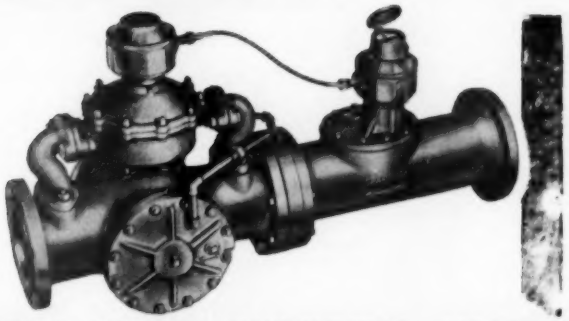
protection, a refuse-storage bin, a bridge crane, two incinerator furnaces and combustion chambers, an expansion chamber, one chimney, an ash tunnel, weighing scales, office and locker room. Each incinerator unit has a capacity of 125 tons per 24 hours. Each unit has a charging hopper and chute, charging grate, a rotary-stoking mechanism, forced air valves and ducts, access and observation doors, ash-pit doors, ash hoppers, ash gates, and dampers. Controls and instruments are on a central panel board on the operating-floor level, midway between the furnaces. Instrumentation was held to a minimum consistent with good operation.

The storage pit measures 20 feet in width, 45 feet in length, and 19 feet in depth, and has a capacity of 635 cubic yards. It will provide for storage of approximately 60% of daily delivery without the need for rehandling the refuse.

The furnaces are Nichols Mono-

SPARLING

WATER CONTROL EQUIPMENT



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accurately register flows over 1 to 1000 range

Where extremely low flows in main-lines must be logged, the SPARLING BROAD-GAUGE is ideal! On a 6-inch line, for example, flows of 900 GPM—or more—are measured with practically no head loss, while flows of 2 GPM are logged accurately, too. The compound valve opens automatically and closes by line pressure. A transmitter can be added for remote indication, recording, or for auto-metered control of chemical feeds. Available in sizes 6", 8", 10" and 12".

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CITIES with park and right-of-way maintenance problems are getting fast, efficient, low-cost help from Sunflower reel-type Gang Mowers and Rotary Cutters. It will pay you to get full details and low prices on these widely-used, money-saving implements.

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A rugged 10-ft. patented Gang Mower for mounting to 3-point hitch—also available as trailer unit with telescopic tongue for any tractor. Six other models 3 and 5 gang. Easy to operate; clean cutting. Built for long service. Priced low!

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With the famous JAWCO applicator brush on the left side, you're ready to mark diagonal parking lines . . .

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• Maintenance economy plus attractive appearance—both are assured for the City of Treasure Island's sewer plant, St. Petersburg, Florida. RUSTARMOR is used as a protective and decorative coating on five—hundred-g.p.m. pumps and sludge pumps.

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MAINTENANCE PAINTS DIVISION

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INERTOL PROTECTION MEANS LOWER MAINTENANCE COSTS

hearth; each has an inside diameter of 11 feet 8⅝ inches. An area extending 3 feet above the grate is lined with silicon carbide brick instead of the conventional high-heat duty firebrick. The volume above the fire grate is 1,125 cubic feet, or 9 cubic feet per ton of rated capacity; the grate area is 36 square feet. The combustion chamber has a volume of 1,890 cubic feet, or 15.1 cubic feet per ton of rated capacity.

Expansion Chamber

The expansion chamber has a volume of 1,300 cubic feet, providing approximately 10 cubic feet per ton of rated capacity. A hearth, where dead animals are cremated, acts as a baffle and should settle out a considerable part of the larger fly-ash particles. No other fly-ash removal facilities were incorporated since the prevailing winds, location, and large area of the site will minimize the possibility of fly-ash complaints.

The furnaces are equipped with Beaumont-Birch refuse-charging and residue-discharging gates that are electrically operated. The chimney is constructed of reinforced concrete on a pile foundation. It stands 100 feet high and has a minimum inside diameter of 9 feet. It is designed for a 150-mile-per-hour wind load.

The electric traveling bridge crane, furnished by the Harnischfeger Corporation, has a span of 45 feet and a capacity of 3 tons. It uses a 1½-cubic-yard Blaw-Knox clamshell bucket.

Outdoor Features

For economy in construction cost, the combustion chambers were constructed outside of the structure. The operating-floor level where the furnaces are located normally is hot, particularly during the summer. Since this region of Florida is not subject to cold weather, the comfort of the operators was considered by leaving the combustion chambers open on three sides. As a result, the area is always well ventilated and comfortable.

The Charging Floor

The charging-floor level also would have been left open were it not for the fact that the wind would strew paper when the bucket dumped its load of refuse into the charging hopper. Therefore, this level was enclosed, but is well ventilated. This level was cantilevered beyond the lower level to provide operational space for the bridge crane, which also reduced construction cost. Clearances, while ample for good operation, were held to a minimum. The plant is quite compact and is highly functional, both in operation and appearance.

The construction work was completed in 10 months. Beginning with September 8, 1954, the plant was operated for a test period of four weeks and satisfactorily met required performance tests and guarantees. Construction cost was $430,000. The general contractor for the work was Nichols Engineering and Research Corp., of New York City; John B. Orr, Inc., of Miami, held the subcontract for the structure.

The 1954 Annual Index

to Contents for THE AMERICAN CITY is available on application to Circulation Department, 470 4th Ave., New York 16, N. Y.

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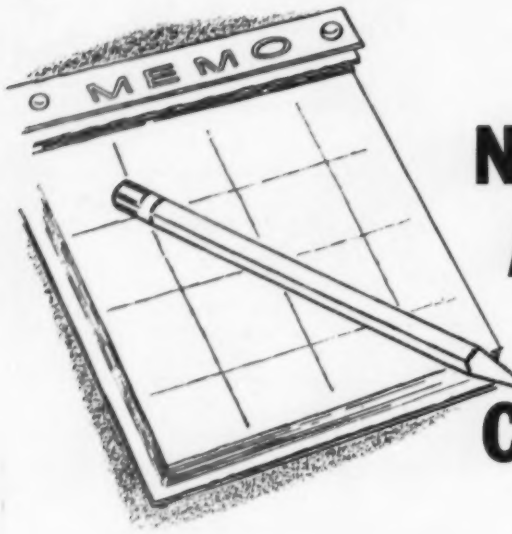

Note To Municipalities And Private Industry With Refuse Collection Problems

The mention of alley cats and efficient refuse collection in one sentence hardly seems like the right association of ideas.

But in Philadelphia the "alley cat"—so dubbed by its operators—is a small Roto-Pac model mounted on a lighter truck. The nickname "alley cat" is descriptive of its ability to work in narrow streets and alleys.

This is just one of the many refuse collection problems being solved through Roto-Pac's modern efficiency.

If you have a refuse collection problem, why not tackle it with a Roto-Pac, large or small, built to do the job.

Roto-Pac's continuous loading and compaction will do a cleaner job, faster and more economically.

Write for a demonstration NOW!

ROTO-PAC FEATURES

- AUTOMATIC CONTINUOUS LOADING
- AUTOMATIC CONTINUOUS PACKING
- GREATER COMPACTION
- LOWEST LOADING HEIGHT
- LOWEST OPERATING PRESSURE (LESS ENGINE WEAR)
- HANDLES STRAIGHT ASH LOADS
- DOUBLE PIVOT TYPE TELESCOPIC BODY HOISTS
- LOWER OPERATION COSTS
- DOUBLES AS SNOW-HAULING VEHICLE

For further information...
or a demonstration ...write

CITY TANK CORP.
53-09 97TH PLACE
CORONA, LONG ISLAND, N. Y.

Zoning Plans and Utility Service Areas

(*Continued from page 133*)

with the extent of the existing sewer system. Beyond this area all lots must be one or two acres in area except for a very small area where ½-acre lots are permitted. Since the pattern was set down well before the post-war building boom, New Canaan has been fortunate in not having been forced to extend its sewer lines beyond the present service area despite the very rapid amount of development that has taken place on the large lots in the outlying areas.

In a recent review of its zoning plan by planning consultants, Adams, Howard and Greeley of Cambridge, Mass., a substantial area was discovered that was zoned for small lots but that could not be served by the present sewer system without installing costly main extensions and pumping stations. To eliminate the possible future necessity of installing these facilities, the town rezoned the area, which was largely undeveloped, to require lot sizes permitting the safe operation of septic tanks. Other communities that have adopted zoning plans that require large residential lots outside the existing sewer and water service areas include Morris Plains and Denville, New Jersey.

Experience has shown that in addition to being geared to water and sewer facilities, zones should also be laid out with respect to school, fire, library, and other community facilities. For just as outlying concentrations of homes on small lots can create needs for expensive extensions of water and sewer lines, the same unplanned concentrations can create the need for extensions of school and other services. The patterns of such extended services are thus often less efficient than if preplanned with respect to carefully controlled population and land-use densities.

In laying out large-lot or acreage zones, many communities have been accused of becoming snobbish and of trying to restrict themselves to high income groups. Indeed large lot zones may have a doubtful validity unless the purposes for which they are established are clearly related to the convenience and welfare of the municipality as a whole. A clear relationship between large-lot zones and the welfare of a community can be demonstrated when the zones are aimed at keeping municipal costs within reasonable limits by preventing scattered clusters of homes on undersized parcels that will probably generate demands for services that will be prohibitively costly to supply.

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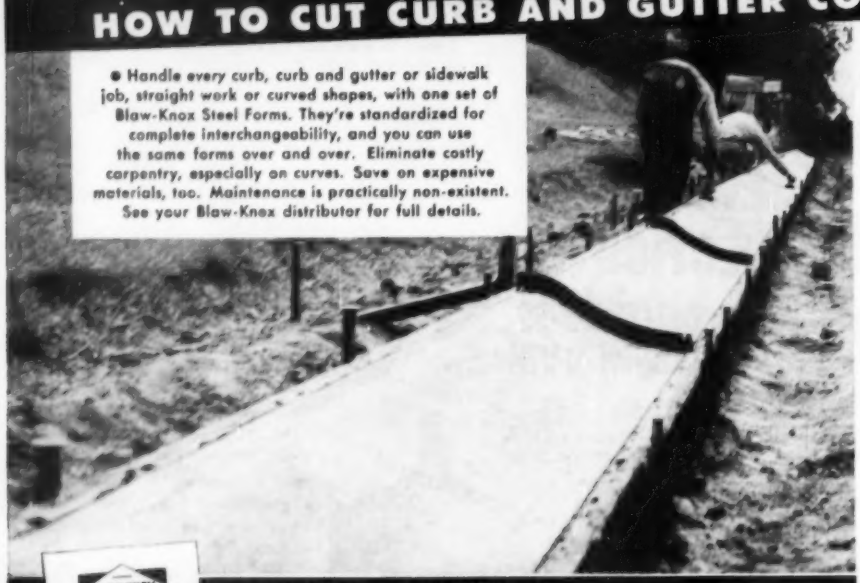

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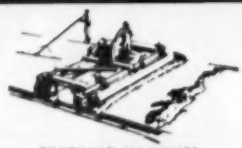
CONCRETE SPREADER-VIBRATORS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O'BRIEN STUMP CUTTER

Precision Built To Take Out Tree Stumps Faster, Better, Completely!

eliminates **blasting, burning, digging!**

Distributor Inquiries Invited

Here is the inexpensive answer to your costly stump removal problems. The O'Brien Stump Cutter will cut out *any* size stump below the level of sidewalk or lawn area and reduce it to shavings! No traffic tie-up or sidewalk and curbing damage. Can be mounted on almost any tractor.

WRITE FOR COMPLETE DETAILS

Metal Parts Machining Corp.
WATERVLIET NEW YORK

New O'BRIEN SEWERKING in operation

NEW KIND OF SEWER MACHINE IS REALLY TWO MACHINES IN ONE!

Now cities can buy one machine and thus let their own maintenance crews handle all types of sewer cleaning jobs. With this new O'BRIEN SEWERKING, crews can use flexible cable or sectional steel rods.

Featured is the new O-B POWER TRANSMISSION, which is the secret to the amazing easy and effective operation of the SEWER-KING. Operator can turn heavy flexible cable and cutting knives to clean sewers, then withdraw and coil cable **all by power.** This new power unit has variable speeds, is reversible and provides the proper speed for all jobs to get top efficiency from all cleaning operations. Cable lengths up to 200' reduce the problem of connecting and disconnecting rodding sections—use cable for top efficiency, less breakage, low cost up-keep and more safety in operation.

CUT EXPENSES IN YOUR NEXT BUDGET: by letting your own maintenance crews handle sewer cleaning jobs with this new O'BRIEN SEWERKING. ONLY one or two men are needed on any job and the complete sewer machine is trailer-mounted and can be towed from job to job.

WRITE TODAY FOR FREE LITERATURE

O'BRIEN Manufacturing Company
Dept. AC-4
5663 Northwest Highway
Chicago 30, Illinois

Is Your Town Getting the Most Out of Photocopying?

MOST public offices have documents, papers, and drawings that are needed by both the public and other departments from time to time. Making copies of records in some city and county departments is quite an industry. In the last few years the photography of records has grown in popularity as a quick and accurate method of supplying copies.

The extent to which photocopying has grown and extended is given by a report just issued by the American Photocopy Equipment Company, 1920 West Peterson Avenue, Chicago 26, Ill. Here follow actual uses for the company's Apeco Auto-Stat.

A Thriving Business

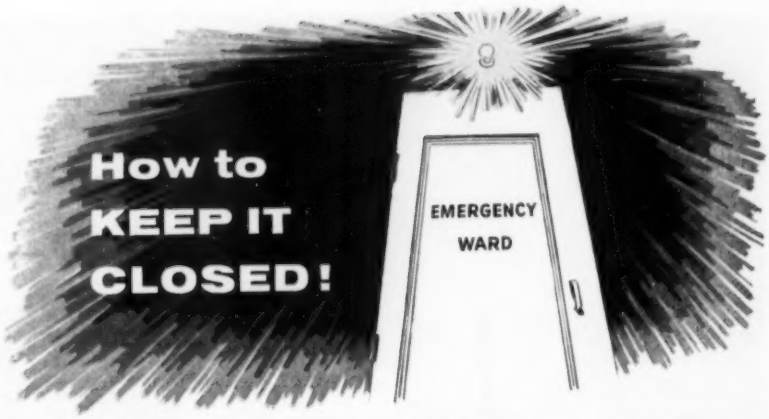
Birth certificates, needed for numerous purposes, are photocopied to be on file after the originals are sent to the state agency prescribed by law. Making photocopies of these photocopies can be a thriving business. The same practice pertains in the case of death certicates.

Copies of wills are frequently supplied by the Clerk of the Probate Court to the attorney of an estate, to an executor, or to heirs. Photocopies of hearing notices and letters of administration are also supplied by the Clerk. The same is true for guardianship letters, orders of commitment and case histories. The Clerk of any court keeps court records, issues process, enters judgments, and supplies certified copies of the records.

Subdivision are drafted by the county surveyor who keeps the original drawing and furnishes the County Recorder with a photocopy. Other photocopies are frequently requested by developers and contractors. Where a department has a drawing showing water and gas main connections, photocopies can be supplied the city employees who will make line repairs. When field men call for copies of blueprints, the City Engineer can furnish photocopies.

Council meeting minutes and financial statements can be photocopied, as can ordinances, bids, and the budget. Departments having confidential reports which they don't care to send out to be duplicated can photocopy them in the office.

The East Detroit, Mich., police department makes one of these copies in 40 seconds. Another police application, as at Vencennes, Ind., is the copying of letters and identification records.



THE GREATER, MORE DEPENDABLE LIGHT OF

amplex

Mercury Vapor Lamps

IS A PROVED DETERRENT TO

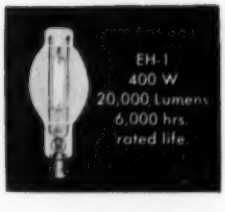
CRIME

TRAFFIC ACCIDENTS

PEDESTRIAN INJURIES

YOU GET

TWICE AS MUCH light for wattage consumed • Burning life several times longer than incandescents • 6,000 HOUR GUARANTEE!



For full information on AMPLEX street lighting and traffic signal lamps, write to **Amplex Corporation, Dept. AC-4, 111 Water St., Brooklyn 1, N. Y.**

North . . . East . . . South . . . West . . .
KERRIGAN
Weldforged
TRADEMARK
STANDARDS
Light the Way!
Tall, tapered and beautiful, Kerrigan Lighting Standards are *Weldforged* of high strength, low alloy steel. Maximum strength is combined with beauty of design to meet the highest engineering standards and conform to I.E.S. Street Lighting Codes.
Join the growing list of cities and towns all over the country now using Kerrigan *Weldforged* standards. Write now for your FREE copy of our new catalog.
New
LIGHTING STANDARDS
For better lighted city streets the standard is Kerrigan!
KERRIGAN IRON WORKS, INC.
NASHVILLE, TENNESSEE
General Sales Office 274 Madison Ave. New York City

More Letters to the Editor

(See also Mail Bag, pages 5 and 7)

To Break the Urban Bottlenecks

The proposed federal highway program provides for the construction of roads but not for the alleviation of urban traffic congestion which these new roads are likely to create.

Funds should be set aside to provide rapid-transit facilities in proportion to highway construction in urban and metropolitan regions. Most cities lack coordinated highways tied into a rapid-transit system. In large cities, fringe parking lots should be connected to downtown and commercial districts by rapid transit, and rapid transit can be built into the median strips of new highways.

Federal aid should be equitably applied to all forms of urban transportation — highway and rapid transit alike — if a dent is to be made in the urban traffic congestion problem of this country.

THOMAS LENTHALL
Planning Board
Cambridge, Mass.

Washington, D C., Opens 2nd Fringe Lot

To relieve the traffic, transit and parking situation in the District of Columbia, the Motor Vehicle Parking Agency has opened its second free fringe parking lot with a capacity of 740 cars. The first lot opened in September 1954, with a capacity of 460 cars. Both of these facilities are on Government-owned land and are open daily except Saturday, Sunday and holidays from 6:45 a.m. to 7 p.m. Express bus service from the lots to downtown and return is furnished by the Capital Transit Company during peak hours. All-day, nonexpress service is also available, during other than rush hours, from the fringe lot.

To make known the facilities, the Parking Agency obtained the cooperation of the major stores, the parking industry, the transit industry and the utility companies. These distribute schedules and other pertinent information regarding the free fringe parking facilities. In short, the program here has been on a community basis with everyone participating.

MILTON M. RODES
Executive Director
Motor Vehicle Parking Agency
Washington 1, D. C.

The American City Evokes Interest

Each story you have had in THE AMERICAN CITY about our sewage and garbage-disposal plant has resulted in quite a number of letters to us—many of them from remote places. In fact, we have had visitors from other countries at the disposal plant who have said that they made Lansing a stop because of articles they read in your magazine. (For latest article see "Sewage Gas Savings," March 1955, p. 104).

COLLINS E. THORNTON
Director of Public Service
and City Engineer
Lansing, Mich.

Parking Problems Solved!

New
PARCOA
System
Operates Parking Lots
Automatically
WITHOUT ATTENDANTS

Now you can solve parking problems in your community . . . relieve congestion . . . provide revenue . . . and do it automatically, without attendants.

The amazing new Parcoa system does the job safely, economically and dependably—without attendants. A simple electrical mechanism controls entrance and exit gates, actuated by card-keys* issued only to authorized holders.

Parcoa equipment is low in first cost. Easy to install. Requires minimum maintenance. No attendants needed. No help problem. Coded card-key can be changed as desired.

Write today for illustrated brochure and name of nearest distributor. Technicolor sound film available for special showing to your group.

*Your choice of controls (coin, card or any combination) makes this system readily adaptable to your requirements.

PARCOA
PARKING CORPORATION OF AMERICA
Division of Johnson Fare Box Company
4619 North Ravenswood Avenue, Chicago 40, Illinois
Sales and Service Offices in Principal Cities listed under BOWSER, Inc.

BETTER LIGHT CONTROL

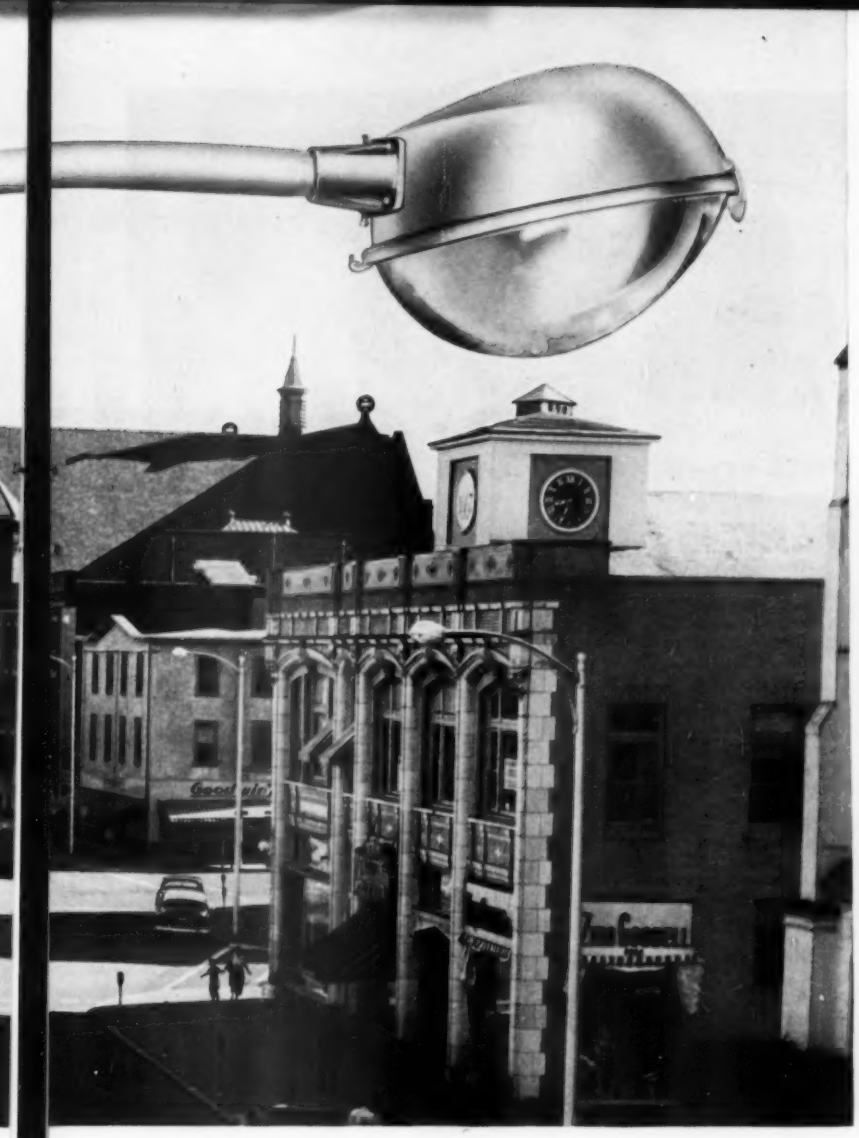
New G-E FORM 400 Luminaire Provides

New mercury street light is easier to service, and offers greater flexibility

The new General Electric Form 400 luminaire is an important advancement in mercury street lighting. Besides providing better over-all visibility through improved optical performance, the new Form 400 is unusually economical to install and maintain.

BETTER LIGHT CONTROL—The unique tilted optical system of the Form 400 puts more light on the street for a new high in utilization efficiency. It also lights the pavement more uniformly over its entire area. Glare is minimized through more effective shielding of the light source. No other mercury street light has ever achieved such superiority in all these factors of visibility.

EASIER SERVICING AND GREATER FLEXIBILITY make the new Form 400 exceptionally economical. The hinged glassware swings down to provide complete accessibility for relamping or cleaning. No tools are required to detach the glassware or reflector from the unit. Sepa-



Better Over-all Visibility

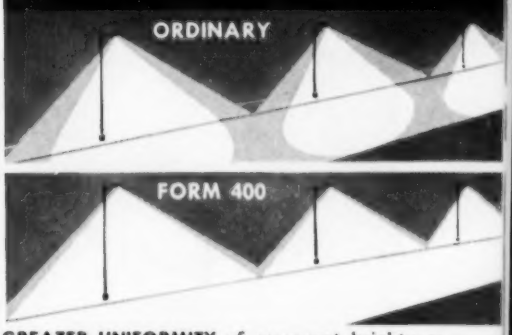
rate, snap-in reflectors provide a choice of either Type II or Type III distribution using the same glassware. Five different mercury lamps may be used, and you have a choice of either multiple sockets for conventional ballasted operation, or an entirely new series socket for Ballastless Mercury Systems.

MORE INFORMATION on this outstanding new development in mercury street lighting is available from your nearest G-E Apparatus Sales Office or Authorized Agent, or by sending in the coupon. Section 452-153, Outdoor Lighting Department, General Electric Company, West Lynn 3, Mass.

Progress Is Our Most Important Product

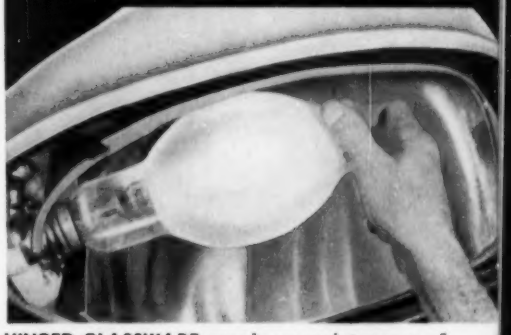
GENERAL ELECTRIC

BETTER LIGHT CONTROL



GREATER UNIFORMITY of pavement brightness and a new high in utilization efficiency are achieved by the new Form 400 luminaire.

NEW EASE OF SERVICE



HINGED GLASSWARE speeds up maintenance of the new Form 400. Both reflector and glassware can be detached without using tools.

GREATER FLEXIBILITY

FIVE DIFFERENT LAMPS, multiple or series sockets, and either Type II or Type III reflectors can be used in the new Form 400.

WRITE FOR FULL INFORMATION

Section C452-153, Outdoor Lighting Dept.
General Electric Co., West Lynn 3, Mass.

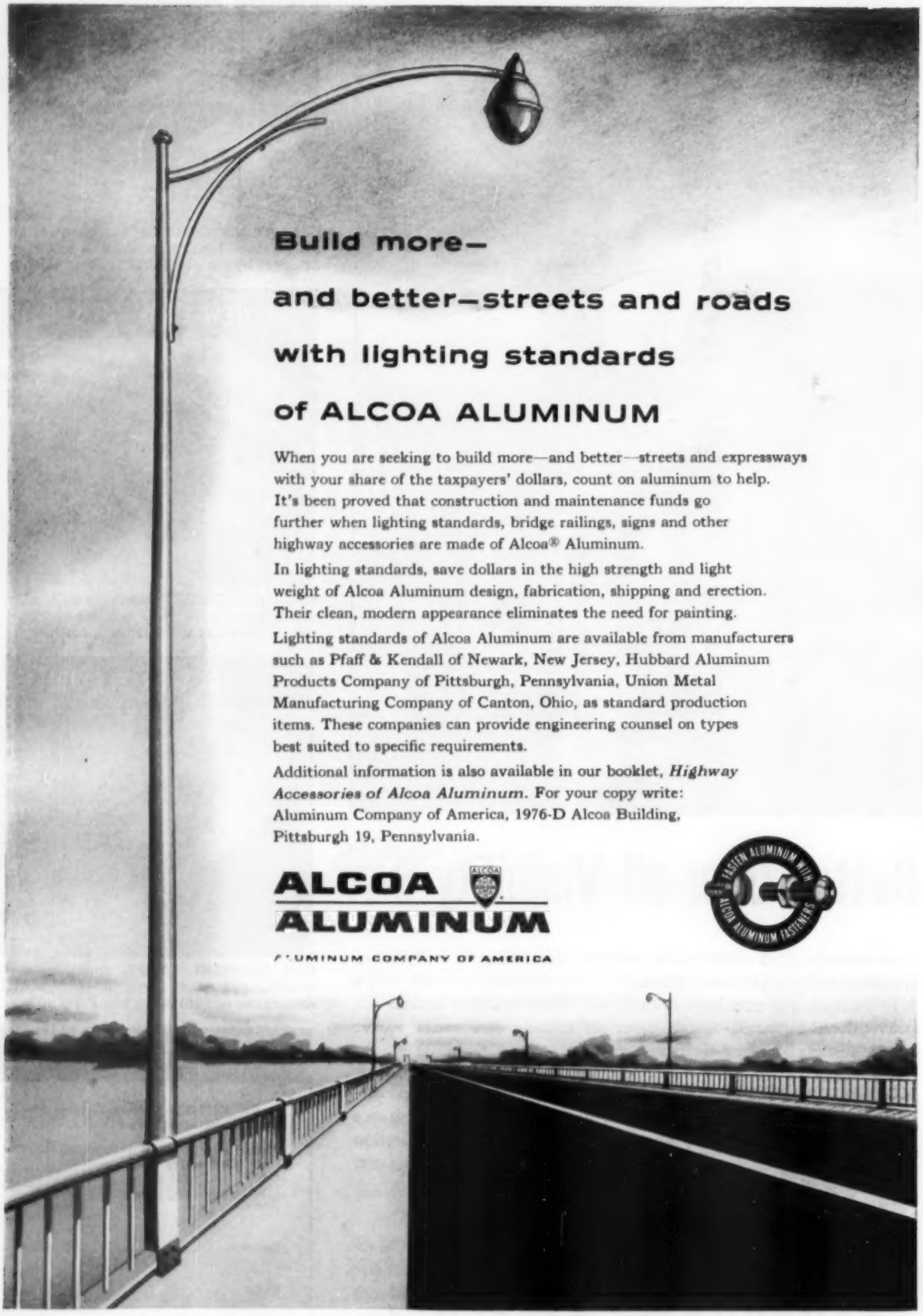
Please send me full information on the new Form 400 Mercury Luminaire

Name .....

Company .....

Street .....

City ..... **State** .....



Build more—

and better—streets and roads

with lighting standards

of ALCOA ALUMINUM

When you are seeking to build more—and better—streets and expressways with your share of the taxpayers' dollars, count on aluminum to help. It's been proved that construction and maintenance funds go further when lighting standards, bridge railings, signs and other highway accessories are made of Alcoa® Aluminum.

In lighting standards, save dollars in the high strength and light weight of Alcoa Aluminum design, fabrication, shipping and erection. Their clean, modern appearance eliminates the need for painting.

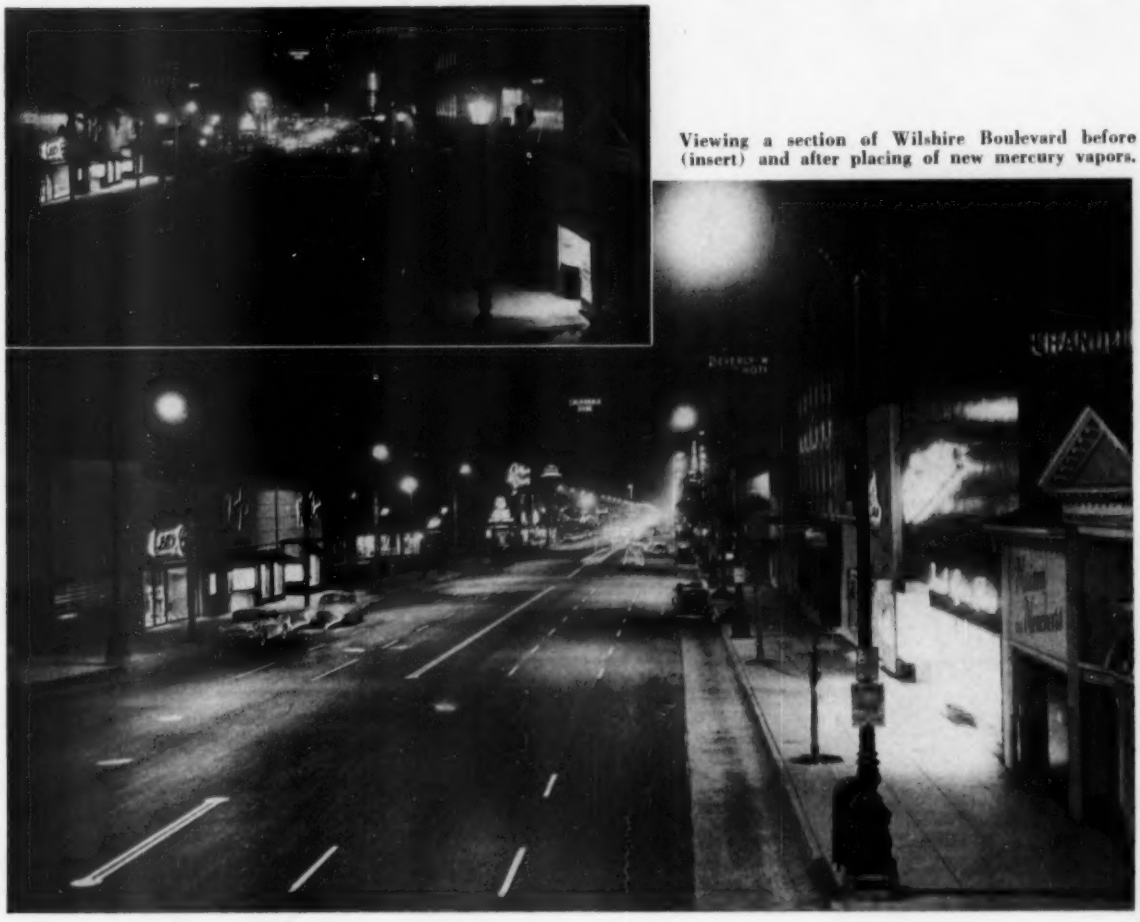
Lighting standards of Alcoa Aluminum are available from manufacturers such as Pfaff & Kendall of Newark, New Jersey, Hubbard Aluminum Products Company of Pittsburgh, Pennsylvania, Union Metal Manufacturing Company of Canton, Ohio, as standard production items. These companies can provide engineering counsel on types best suited to specific requirements.

Additional information is also available in our booklet, *Highway Accessories of Alcoa Aluminum*. For your copy write: Aluminum Company of America, 1976-D Alcoa Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

FASTEN ALUMINUM WITH ALCOA ALUMINUM FASTENERS



Viewing a section of Wilshire Boulevard before (insert) and after placing of new mercury vapors.

Relighting Wilshire Boulevard

By JOHN B. WENTZ, *Administrative Officer, Beverly Hills, Calif.*

THE "before" picture of Wilshire Boulevard lighting (insert) was taken on May 27, 1954; the "after" picture, during the first week of December 1954. Each shot was made at approximately 12:15 a.m. Comparison of the two scenes indicates the success in converting existing light standards on Wilshire Boulevard, from one city limit to the other, to the new mercury-vapor unit.

The reason the standards were converted, rather than replaced, was twofold. First, it reduced the cost somewhat; second, the ornate bases of heavy bronze were part of the character of this famous boulevard, and it was felt there would be decided opposition to removing them. Therefore, the higher standard, placed on the existing base, and the new mast arm were designed to key in with the ornamentation of the familiar base.

The pole extensions and mast arms were furnished by the Pacific Union Metal Company; the OV-20 luminaires, by Westinghouse Electric Corporation. As the photographs indicate, the light on the street has been increased from an average of about 0.25 foot-candle to over 1.5 foot-candles. Set forth below in tabular form are pertinent details about this Beverly Hills project:

Length (each side)—10,599 feet
Number of Standards—243
Total cost—$118,842.30
Assessment to property owners per front foot—$5,606
Completion date—November 21, 1954

This job was financed through the Improvement Act of 1911, under which an improvement district was formed, consisting of only those property owners front-

AVENUE OF THE AMERICAS UP-DATES LIGHTING WITH MONOTUBE POLES. On New York City's Avenue of the Americas, attractive Monotube street lighting poles combine with mercury-vapor luminaires for added distinction and safety on a world-famous thoroughfare.

During the first half of last year, accidents on the relighted section of the Avenue were reduced by 41%, compared to a 2% increase for the entire city.

For economy and maximum efficiency it will pay you to include Monotube poles in future lighting plans. Designs and sizes are available for *every* outdoor lighting need. Write The Union Metal Manufacturing Company, Canton 5, Ohio, for further information.

UNION METAL
Monotube Lighting Poles

ing on the street. I might add that we are now engaged in a program by which all of the "business triangle" will be lighted with mercury-vapor lights, within the next year, as a result of similar assessment districts. Three installations were underway concurrently during February on streets in this area.

Lighting Latest of Houston's Oak Forest Streets

SECTIONS 15 and 16 of the Oak Forest Addition in northwest Houston, Texas, have been equipped by the Frank W. Sharp Construction Co., owner and developer, with 210 Spherolite Jr. (Line Material Co.) luminaires on steel light poles. They are spaced alternately at intervals of 250 feet. Average surface illumination is 0.01 to 0.02 foot-candles.

The lamps in the 6.6-ampere circuit are 2,500-lumen incandescents. The Carco Junior poles were fashioned as residential lighting poles, a standard model Carco steel pole recently developed by the Pacific Car and Foundry Company, of Renton, Wash., to meet residential street-lighting requirements of economy and good appearance. The modern steel poles, spaced evenly on both sides of the streets, actually add to the attractiveness of the community, helped by an underground wiring system.

Sections 15 and 16 of Oak Forest include 1,150 families. When completed sometime in 1955, the cost will have mounted to over $16,000,000. The cost of the lighting installation alone will be $73,500. Oak Forest is an eight-year-old subdivision with 5,500 homes and an estimated value of $55,000,000.

The telescoping boom of a Bucyrus-Erie Hydrocrane and a Ford truck equipped with a hydraulic lift platform, team together to replace one of 243 street lights along busy Wilshire Boulevard in Beverly Hills, Calif.

These graceful steel light poles were designed by Pacific Car and Foundry for the lighting requirements of residential communities. The luminaires in the Oak Forest Section of Houston are L-M Spherolite Jrs., housing 2500-lumen incandescent lamps.

Mercurys on Boston Post Road Through Greenwich

GREENWICH, CONN., will be the first city in southern New England to install the newly designed General Electric mercury-vapor street lights known as the Form 400 mercury luminaire. Some 188 units will be installed along the Boston Post Road from the Stamford city line to the New York State line as part of an extensive modernization project to light the highway completely by mercury lamps.

The lights, of 20,000 lumens will feature a tilted lamp, reflector, and glass refractor. This design focuses more light on the street, making the lamps ideal for use on high-speed thoroughfares requiring a high level of illumination.

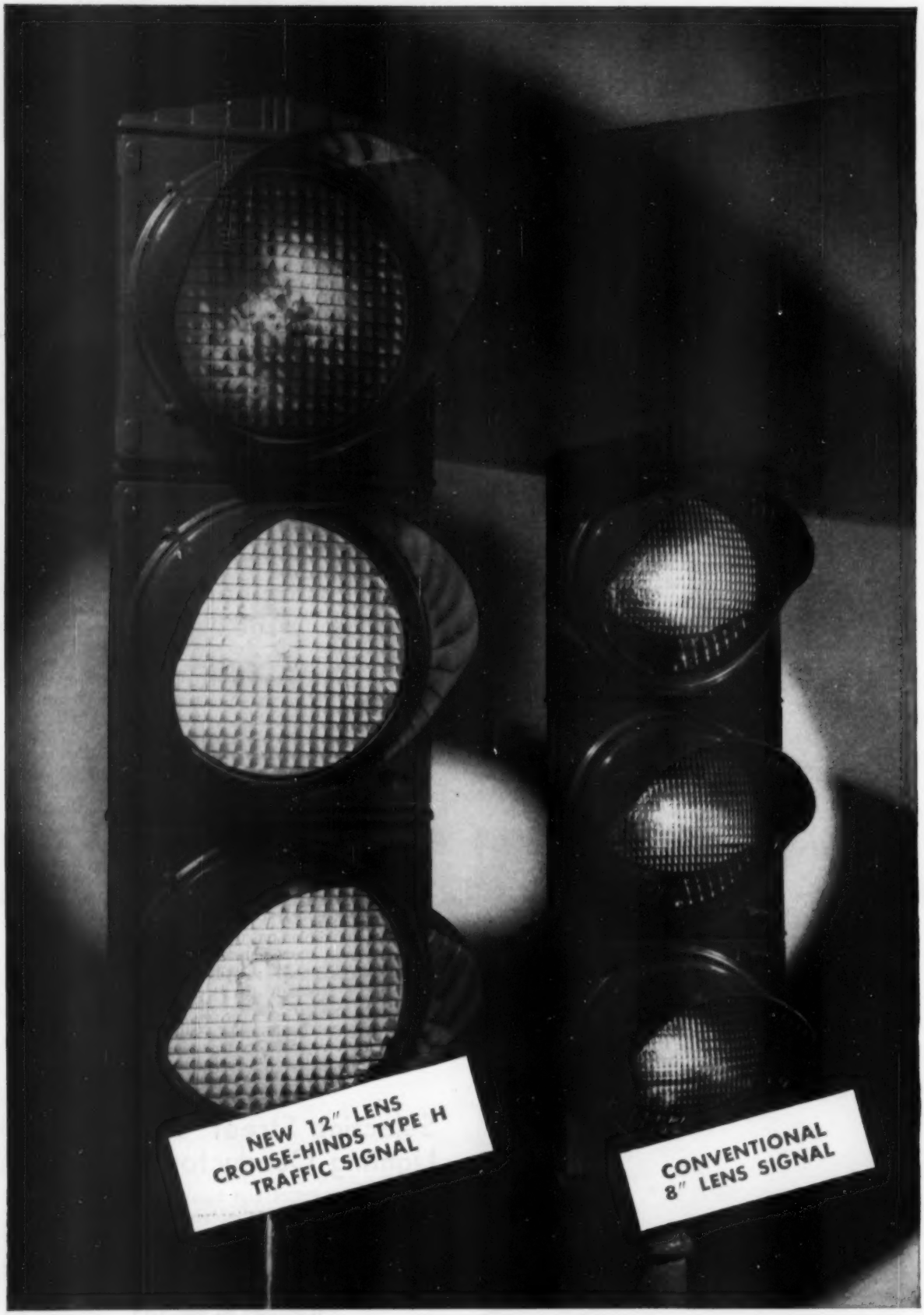
Robert I. Coleman, Greenwich district manager of The Connecticut Light and Power Company, said his company would plan on starting the job in March when the equipment was received and hopes to complete it within two months.

There are presently 184 street lights in use on the Post Road, including 79 mercury, 92 sodium vapor, and 13 incandescent lamps. The sodium and incandescent lamps will be replaced by new mercury lights.

Selecting Street Lighting Conductors

MUNICIPALITIES and highway-planning commissions are becoming increasingly aware that good street lighting reduces traffic accidents, improves business, cuts crime, and builds good community relations. The importance of this subject has warranted the preparation of an attractive and readable brochure devoted

(Continued on page 177)

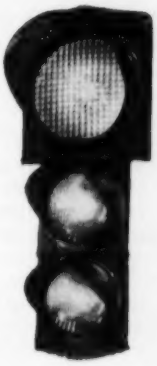


FISHER-PIERCE

New 12"

TRAFFIC SIGNAL BY

CROUSE-HINDS



Saves Lives! New to the U. S., but used and proved effective in Canada for several years, this kingsized traffic signal definitely reduces accidents at critical street intersections and along high-speed highways. Bigger and with 3 to 4 times greater light output, its conspicuousness impels more motorists to start decelerating sooner and to obey the stop light.

Similar in construction to the conventional 8" lens signal, the Crouse-Hinds 12" signal uses lenses which meet the ITE specifications for color – has a dust-tight optical system – an adjustable lamp receptacle to take lamps ranging in power from 60- to 250-watts. *More details in free Bulletin sent on request.*

Now in Use in:
Canada: – on the 100-mile Queen Elizabeth Way from Niagara Falls to Toronto . . . City of Toronto
United States: – District of Columbia . . . Virginia . . . New York City (approach to Holland Tunnel)

Now Being Tested in:
Canada: – British Columbia
United States: – Rhode Island . . . Ohio . . . Michigan

● Unitized construction so that you can stack three 12" sections (Type H) or one 12" and two 8" sections (Type K). Walk, wait and arrow lenses available. Multi-faced signals for 2, 3, 4, 5 or 6 directions can be formed. All types of attachments now available for 8" size also available for 12".

A NATIONWIDE DISTRIBUTION exclusively through ELECTRICAL DISTRIBUTORS

CROUSE-HINDS COMPANY
SYRACUSE 1, N. Y.

OFFICES: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., St. Louis, St. Paul, San Francisco, Seattle, Tulsa, Washington. RESIDENT REPRESENTATIVES: Albany, Atlanta, Baltimore, Baton Rouge, Charlotte, Chattanooga, Corpus Christi, Harrisburg, Ft. Worth, Richmond, Va., Shreveport

Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.

TRAFFIC SIGNALS • CONDULETS • FLOODLIGHTS • AIRPORT LIGHTING

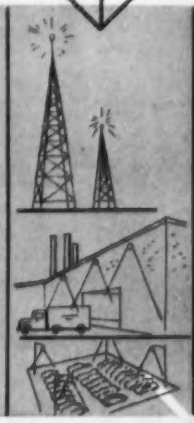
FISHER-PIERCE
PHOTOELECTRIC CONTROLS

for every lighting system requirement

The extreme versatility and quality of Fisher-Pierce photoelectric lighting controls is evidenced by their widespread use over the past eight years, in controlling hundreds of street lighting systems . . . aircraft obstruction and beacon lights . . . outdoor signs and store window lights . . . parking, loading and storage area lights . . . poultry house and roadside telephone illumination, etc. All Fisher-Pierce controls employ a basic circuit whose dependability, ruggedness and trouble-free performance have been proven in use.

SERIES 63300C CONTROLS

Rugged, easily installed, accessible units for switching up to 3000 watts of lighting load. For operation at 105-130 or 210-250 V, 50-60 cycles. Standard models come with SPST, SPDT, or DPST power contactors. Special models are available with a switching capacity of 6000 watts. The electronic chassis is enclosed in a weatherproof watt-hour meter case assembly which plugs into a standard meter socket. The new 63300C design represents the results of eight years' extensive, specialized experience in the field.



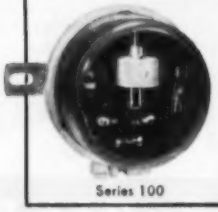
SERIES 64400 CONTROLS

Small, compact, low cost units for switching 1000 watts of incandescent, mercury or sodium vapor lamps at 120 V, 50-60 cycles. Designed for use as an integral part of various manufacturers' luminaires, as well as for ballast, pole top, cross arm, standard and other mountings. Low initial cost and low maintenance make the use of one Series 64400 control per lamp economically practical for new street lighting installations and isolated locations.

THE *nitelighter*

. . . for automatic control of home lights

An inexpensive, compact, automatic control made especially for domestic use. Operates on 110 volts AC, switches up to 300 watts. Plug lamp to be controlled into NITELIGHTER plug, face "eye" toward window; living room, hall, garage lights, etc. go on at dusk, off at dawn automatically and without attention. You'll never come home to darkness. Protects the home when you're away. Get it at your dealer, or if he cannot supply you, send a check or money order for $13.95. A NITELIGHTER will be sent postpaid and insured.



Series 100

MULTIPLE RELAYS FOR SWITCHING LOW VOLTAGE OUTDOOR LIGHTING CIRCUITS

Fisher-Pierce multiple relays incorporate a maintenance-free mercury plunger relay conservatively rated to switch 30 amps. at 110-115 volts AC. Series 100 relay is housed in a standard meter case and is available with or without line and coil protective equipment. The low cost Series 200 (not shown) is housed in a weatherproof cast aluminum case. Both series are designed for outdoor use as pilot wire control or for cascading street lighting circuits. Available with normally open or normally closed relays.

Complete Specifications and Data Available on Request

THE FISHER-PIERCE COMPANY, INC.

94 Pearl Street, So. Braintree, Boston 85, Mass.

EXPORT: PHILLIPS EXPORT CORP. DIVISION OF NORTH AMERICAN PHILLIPS 100 E. 42ND STREET NEW YORK 17, N. Y.

IN CANADA: NORTHERN ELECTRIC CO., Ltd.

Outdoor Lighting

(*Continued from page 173*)

entirely to the selection of street-lighting cables.* The information is arranged according to voltages, and the two common types of circuits—series and multiple—are treated separately.

The brochure points out that approximately 90% of all existing installations are of the series type. On the basis of *present* purchases, however, it is estimated that 90% of new installations are multiple circuits. Many communities are switching from series to multiple, neighborhood by neighborhood, because the latter offers very definite advantages. Lamps cost less and are easier to replace; individual lights can go out without affecting the entire circuit, and the unlit lamp gives a clue to the location of the trouble; the lower voltages used in multiple circuits reduce the danger in such accidents. The selection guide for multiple circuits is broken down into direct burial, duct, conduit and open-air installations. Several cable choices are given for each situation.

Although series circuits may involve higher voltages, this bulletin covers cables up to 5,000 volts since this is the common range. Several choices are given for each voltage range and for each method of installation. It is noted that series lamps have more rugged filaments than do those for multiple circuits. At 70% life, the lumen output of series lamps will have dropped 1% as against 16% for multiple lamps. Chances are you already have series lighting. If it is satisfactory, the expense of a changeover may be hard to justify.

For a new project, a choice between using cable or open-line wire will have to be made for each part of the system. Forecasts of community growth are important at this point. It is often less expensive to put cables underground in the first place if it is anticipated that circumstances will require such an installation in the next few years.

* For a free copy of this 16-page booklet entitled, "Wire and Cables for Street Lighting," write to the General Electric Company, Bridgeport 2, Conn.

Lighting a Street 172 Feet Wide

SEVENTY-NINE 20,000-lumen Westinghouse mercury-vapor units and thirty-three 6,000-lumen incandescent units now light the City of Keene, N. H. Forty-eight of the mercury luminaires are located in the business district, with the remaining mercury and incandescent units replacing an outmoded system along principal streets feeding the downtown section.

Looking toward Main Street after OV-20 units were installed.

The newly lighted street is 172 feet wide from curb to curb. The luminaires are mounted 30 feet above the roadway on transformer base American Concrete poles that are spaced 85 feet apart on each side of the street.

It was first proposed to the city that a center island be built using twin bracketed standards for a more uniform coverage. The city decided against this. It was, therefore, necessary to space the units somewhat closer along the curb lines and take advantage of all of the illumination available from the OV-20 units by raising them slightly above center. The result is an outstanding installation.

An official of the Public Service Company of New Hampshire has estimated that the mercury-vapor lights provide at least four times the light given by the previous incandescent system in the downtown area, and at considerably less cost. By all available records, this is the first time that this has been done on such a wide street and particularly in a business area.

What Makes Fluorescents So Popular?

THE technique of street lighting with fluorescent lamps is radically different from anything we have had in the past. Is this new technique *the* street lighting of the future? How widely *will* it be used? The answer is not a simple one. No one would predict widespread use of fluorescent street lighting just because it is novel—different. Nor would anyone say that, because fluorescent lamps are low in brightness, they automatically overcome the criticism of *glare* from street-lighting fixtures.

No, we must probe much deeper. We must appraise this new technique in the light of our knowledge of the factors which combine to produce visibility—good seeing—and along with visibility, eye-comfort. For comparison we must re-appraise our *present* street lighting practices by the same criteria. Our approach to this is through the available basic knowledge by which any technique of street illumination can be evaluated. At our Street Lighting Conference at Nela Park in May 1954 the basic factors affecting visibility and seeing comfort were outlined, as were also the basic laboratory and roadway measurements of these relationships.

KIRK M. REID, *Application Engineer*
Lamp Division, General Electric Company
Nela Park, Cleveland, Ohio

Higher Concrete Standards

WHEN La Grange, Ill. (population 13,000), installed street lighting 30 years ago, the standards selected were concrete. They were only about 12 feet high and were mounted on upright, ornamental lanterns that were considered "tops" in those days. The standards were made by the Westinghouse Electric Corporation.

Today's traffic volume, especially since the main street of La Grange is a U. S. highway, found the old installations inadequate. So the business district has a new look with 30-foot ACC prestressed concrete standards with suspension-type luminaires.

The latest achievement in fluorescent street lighting

Looking toward Main Street after OV-20 units were installed.

FACTS about the new Westinghouse fluorescent street lighting luminaire

FACT: Top efficiency—The new 4-FSL-72 fluorescent luminaire has a large one-piece reflector and offset lamp arrangement. No physical obstructions interfere with light distribution.

FACT: Day and night eye appeal—The smooth fiber glass hood and clear plastic cover blend to produce a clean silhouette by day and a comfortable light source at night.

FACT: Easily maintained—Cover opens from either side by releasing 3 spring tension latches permitting speedy relamping and cleaning. Sponge neoprene gasket seals out bugs and moisture. Cover can be easily replaced in frame by removing 4 screws—slide out old cover—slide in new—without further adjustment.

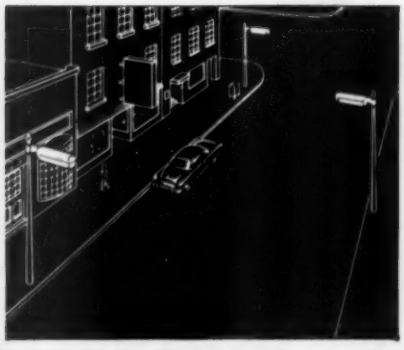
FACT: Extremely durable—rugged fiber glass hood does not require paint. Extruded methylmethacrylate cover will not craze or discolor. Wiring is by duplex circuit so when a lamp fails, only one lamp in a reflector goes out.

4-FSL-72 can be mounted horizontally or at any angle between 20° and 30° for different light distribution patterns.

For more FACTS see *The Man With The Facts*—your Westinghouse representative.

J-04364

YOU CAN BE SURE...IF IT'S Westinghouse



This exciting new look in street lighting is an attractive addition to any community.

For all the benefits of fluorescent lighting—ask about the new 2-FU-72 for tunnels and underpasses.

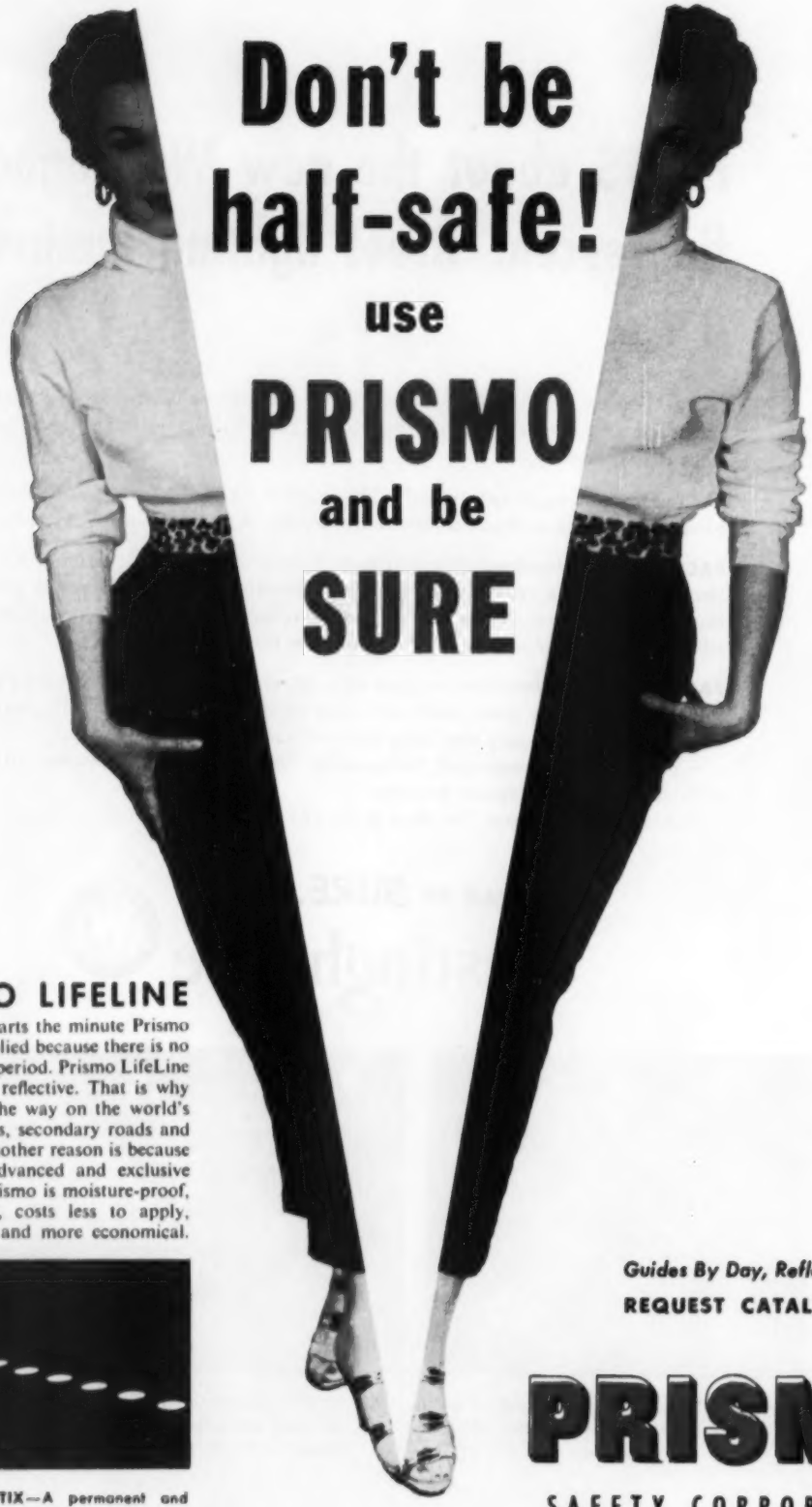
Don't be half-safe!

use

PRISMO

and be

SURE



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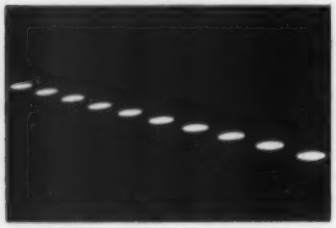
Safe driving starts the minute Prismo LifeLine is applied because there is no wait and wear period. Prismo LifeLine is immediately reflective. That is why Prismo leads the way on the world's super highways, secondary roads and city streets. Another reason is because of Prismo's advanced and exclusive advantages. Prismo is moisture-proof, more brilliant, costs less to apply, longer lasting and more economical.



PRISMO PLASTIX—A permanent and reflective marking material with a variety of uses for marking crosswalks, safety zones, schools, stop streets, etc. Permanent reflective all weather visibility.

Guides By Day, Reflects By Night

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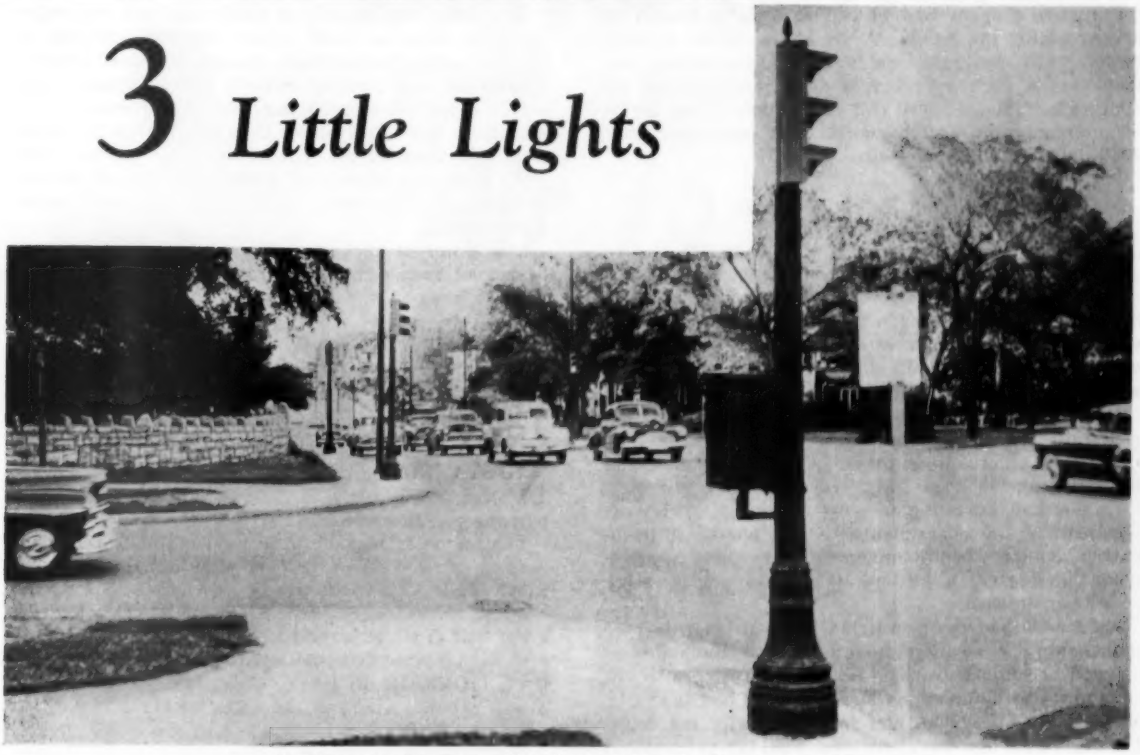
1202

Traffic Control

3 *Little Lights*



Southwest Traffic Way and Valentine Road in Kansas City, Mo.

. . . and how they grew

By JAY A. CARSON
Outdoor Lighting Dept.
General Electric Company

INTERSECTIONS are time stealers. On some streets all traffic would stop if the intersections were not controlled. A bridge or a tunnel can bring an intersection under control, which is to say, keep traffic flowing though these are expensive means. The universal and practical method for doing this is employment of the ordinary traffic signal. *Three little lights:* the green to go, the yellow for clearing the intersection, and the red to stop, are signals known throughout the world. Little boys throw rocks at traffic signals, men curse at them, and women have been known to ignore them, but the traffic light is recognized as the great guardian of the intersection. The results wouldn't be good if all traffic lights suddenly ceased to function. Traffic lights as lights mean little. It is the controlling mechanism that makes them a traffic signal.

A little metal box attached to a pole or sitting inconspicuously on the ground contains the mechanism that is the brains of a traffic signal. This little box is called the *controller*. At first controllers were simple devices. A timing mechanism, and an electric switch delivered a basic cycle to the traffic signal. One way green, the other way red for half a cycle, and then over again. This was fine for a while but what if one way had twice the traffic that the other way had? To solve this a controller was built with an adjustable cycle. One way to be green for, say, 75% of the cycle and green only 25% the other way, thus giving the busy street more of the "go" time.

Traffic varies, sometimes predictably. At a given intersection, it may be heavy for a while in one direction, then heavy for the rest of the day in another direction. For example, visualize a factory situated on a side road off a busy highway. The road to the factory would be heavily traveled when workers were going to and from work; the rest of the day it would be lightly traveled. A set of lights is necessary and a controller is needed with different timing cycles for different parts of the day. Eventually, such a controller was built. Up to three different timing units or sequences are used in present-day controllers. These sequences are usually selected by a timing switch, manually, or by remote means. This controller is in common use today.

Sometimes traffic lights can slow up traffic. A string of lights along a main street may require a driver to stop at each intersection. The solution may be to interconnect the controllers and phase their relative timing

Traffic Control

for a more efficient flow of traffic. This is known as synchronizing the lights. A master controller is used to supervise the relationship of interconnected controllers. In such a system a driver maintaining an appropriate rate of speed can go through a long series of interconnected traffic signals and encounter only a minimum number of stops.

Pedestrian Actuated Signals

What of the woman shopper, a child on his way to school, or a man who had just parked his car, all wanting only to cross the street? They can wait till the lights turn green, but even then there are the turning vehicles to watch. An exclusive pedestrian interval was needed which would stop traffic both ways. This was easily incorporated into traffic controllers but then complaints streamed in from irate drivers who objected to stopping at an intersection when no one was trying to cross the street. A system was needed whereby a pedestrian interval would be given only if someone was waiting to cross the street. This was the birth of the pedestrian activated phase. A push-button was placed in a convenient spot where a pedestrian could push a button and obtain an exclusive pedestrian interval.

No sooner had the pedestrian interval been devised than motorists began complaining that signals slowed down traffic unnecessarily. Whole lines of cars would be stopped while an empty street or road had the right of way. People asked, and justly so, why not build a traffic signal system where you wouldn't get a green for an empty road. They wanted a controller that worked like the pedestrian-actuated controller. A semiactuated controller was invented and produced.

This controller usually operated a set of signals at an intersection of a heavily traveled road and a slightly traveled one. The main street of this intersection had a constant green signal. It maintained this right of way until a vehicle approached the intersection on the minor road. Then the lights changed and gave the minor road the right of way. This was accomplished by use of a detector placed on the minor road so that an approaching vehicle would have to pass over it. The vehicle passing over this detector created an impulse which was relayed to the controller which, in turn, delivered the desired signal change. After the vehicle had had time to clear the intersection, the right of way returned to the main street.

Full Traffic Actuated Signals

The development of a full-actuated controller soon followed. The full-actuated controller differed from the semiactuated controller in that all approaches to intersections contain vehicle detectors. This type of controller is used when traffic at the intersection is variable and spasmodic. The right of way in a full-actuated controller remains with the phase that was last actuated. A further development of the full-actuated controller was the density controller. This was an actuated controller timed by an electronic device that adjusted itself automatically to the volume of traffic approaching in all directions and thus a smooth and efficient flow of traffic is assured at all times. The full-actuated density controller has its best application on congested and heavily traveled isolated intersections.

In a large city recently, a traffic engineer was called in to do what he could to get the traffic moving on the city's main thoroughfare. Installing several actuated controllers and making several minor streets "one-way," saved over 2,000 motorists an average of 10 minutes a day—in a year's time that's 14 years saved for the citizens of that town. Other advantages were eight policemen relieved of traffic duty and higher sales because smooth flowing traffic attracted more out-of-town people.

The point is that equipment has been developed to correct almost any traffic condition that exists.

New York City's Tow-Away Zone

NO STANDING during rush hours on certain crowded New York streets means towing away trucks and passenger cars which violate.

New signs employ a white message on a red background on the upper half of the sign, stating: NO STANDING, LOADING OR UNLOADING 8-9 A.M. and 4-6 P.M. MONDAYS THROUGH FRIDAYS. On the lower half of the sign red letters on a white background give the message, NO PARKING 8 A.M. to 6 P.M. MONDAY THROUGH FRIDAY. A yellow plate has been placed across the top of the signs carrying the words

(Continued on page 185)

Thirty-fourth Street near Herald Square—one of the designated tow-away zones in New York City. Increased vehicular capacity and improved traffic movement have resulted from the prohibition of standing, loading, and unloading during morning and evening rush hours on this busy east-west street.

delivered a basic cycle to the traffic signal. One way

connect the controllers and phase their relative timing

Better Stripes...

TWO AT A TIME WITH

Air to Spare!

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WALD

MODEL 16

REFLECTO-LINER

Here's a compact and highly-maneuverable striping machine for two line simultaneous operation that gives you the kind of clean-cut, even traffic lines that keep traffic well-regulated and safe on the highways and city streets. The Model 16 is self-propelled and will handle plain and reflective marking materials to lay lines 2″ to 6″ in width. To insure high output, a 50% air supply is maintained in reserve. SINGLE or DOUBLE LINES can be made at will with variable spacing to comply with A.A.S.H.O. standards. All the accessories shown in the Wald catalog can be placed on this machine. And here is an important extra . . . the Model 16 was specifically designed with an eye to the elimination of replacement parts wherever possible. Settle for nothing but the best . . . check today for complete details on this efficient machine. Get your free copy of the full-of-facts catalog, No. W-10.

MODEL 8T

Lightweight, single line, self-propelled spray machine. For plain or reflective paints. Works close to curbs. 50% air reserve.

MODEL JR.

Economy liner to meet the requirements of industry and municipalities. Handles plain or reflective materials. Large capacity, well balanced.

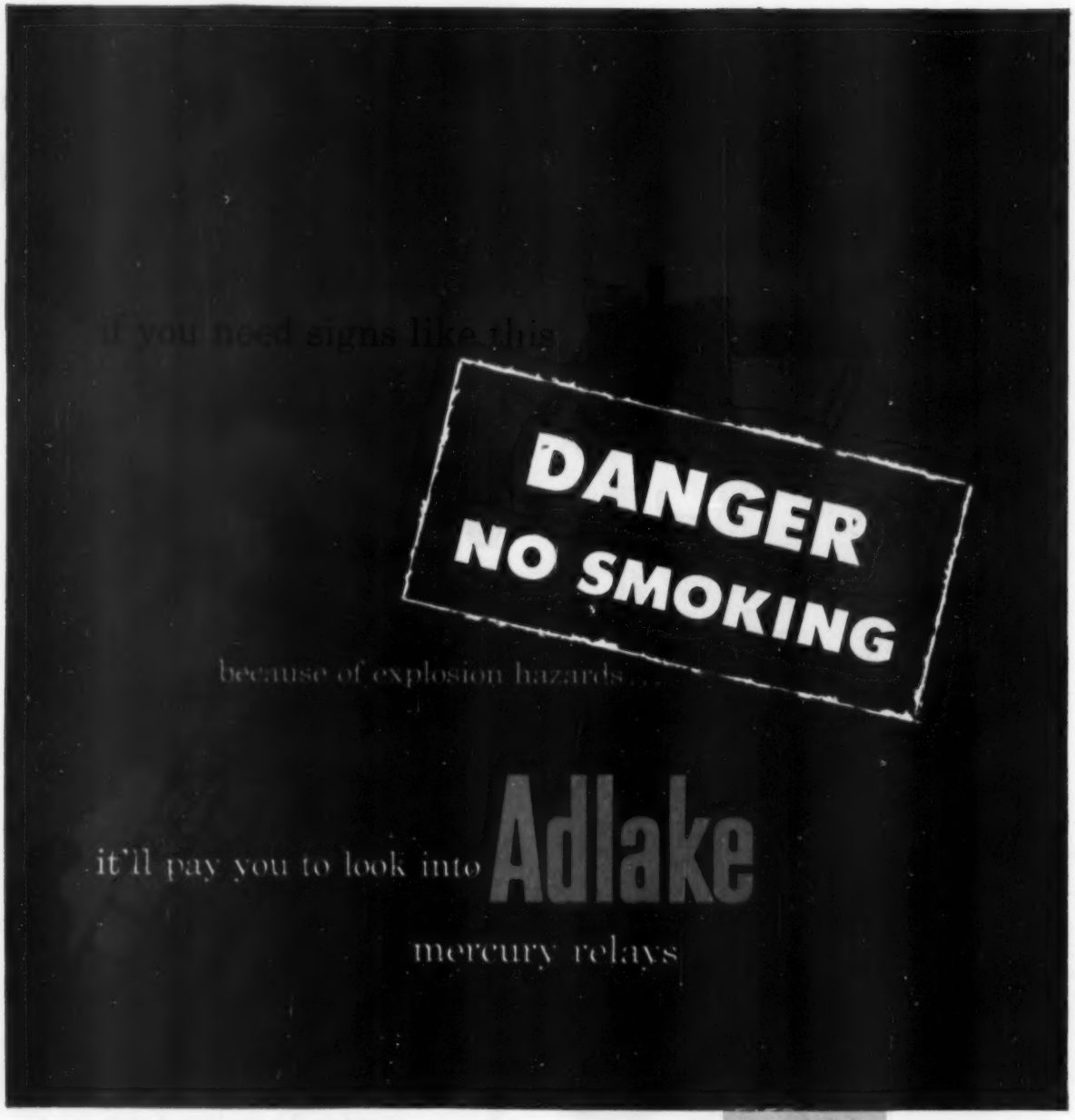
WALD INDUSTRIES, Inc.

HUNTINGDON, PENNSYLVANIA

1544

congested and heavily traveled isolated intersections.

the prohibition of standing, loading, and unloading during morning and evening rush hours on this busy east-west street.



Adlake relays require no maintenance whatever ...are quiet and chatterless...free from explosion hazard. Dust, dirt, moisture and temperature changes can't affect their operation. Mercury-to-mercury contact gives ideal snap action, with no burning, pitting or sticking. Time delay characteristics are fixed and non-adjustable.

Adlake 98th year

The Adams & Westlake Company

Established 1857 • ELKHART, INDIANA • New York • Chicago

the *original* and largest manufacturers of mercury plunger-type relays

Traffic Control

in black, TOW-AWAY ZONE. We believe that the design of the new signs, using the red background for the NO STANDING legend will emphasize the importance of the regulation and the TOW-AWAY ZONE legend will give it full impact.

Commissioner Andrew W. Mulrain, head of the Department of Sanitation, has assigned six standard tow trucks plus a heavy-duty truck to towing of vehicles parked or standing at the curb during the period from 4 p.m. to 6 p.m. The police will issue a $15 summons to such vehicles and the Department of Sanitation will levy a $10 fee to be paid when the car or truck is redeemed from the auto pound.

The regulation prohibits all vehicles from stopping at the curb other than to obey traffic signals or while in the act of quickly picking up or discharging passengers. It is illegal for vehicles to stand with a driver at the wheel while someone runs into the store and it is illegal for trucks to load or unload during the NO STANDING periods. It is only by such rigid control that maximum usefulness can be made of these streets.

T. T. WILEY
Commissioner of Traffic, New York, N. Y.

Signs You Can't Miss

THE large letters used in the construction of large direction signs, seen increasingly on streets and highways, are also winning an increasing number of extra uses. Shown here is an announcment of coming events at Soldier Field, Chicago. It is constructed of Railock letters made by Wagner Sign Service, Inc., 216-218 S. Hoyne Ave., Chicago 12, Ill.

These silhouette letters are used by state highway departments and the New York Port Authority. Wagner says their letters are also used by many towns for identifying fire department buildings and municipal auditoriums.

Other manufacturers of letters suitable for similar use are Sargent & Sowell, Inc., Grand Prairie, Texas, and A'G'A Division of the Elastic Stop Nut Co., Elizabeth, N. J.

Better Transit in Vancouver

VANCOUVER, B. C., has cooperated with the British Columbia Electric Company's $30,000,000 transit modernization program.

A new bridge over False Creek, which runs through the downtown section of Vancouver, is believed to be the only eight-lane bridge in North America, except for those in New York City. Five of Vancouver's 19 trolley coach lines now operate over the new Granville Bridge.

Simultaneously with the construction of the bridge, the British Columbia Electric Company was going ahead with its modernization. This is the program that started in 1946 when streetcars provided more than 90% of the service. Today—nine years and $30,000,000 later—the company operates 327 trolley coaches and 146 motor buses in Vancouver and 277 additional motor buses in the surrounding area.

Pedestrian-Phased Signals

THE "scramble" system of traffic control, which consists of a three-phase signal cycle—one phase for only pedestrian movement, the other two for only vehicular movement—has been operating in the business district of Sacramento at 10 intersections since 1952.

Theoretically, all possibility of pedestrian accidents has been eliminated with the exception of those caused by jay-walking or signal disobedience.

There have been some less favorable changes accompanying this reduction in pedestrian hazard and unmeasured increase in freedom of vehicular movement. Both vehicles and pedestrians are required to wait longer before receiving a green light to cross the intersection. As a result of the longer pedestrian wait, some blocking of the sidewalk occurs at the intersection. There are times of the day when the sidewalk between the curb line and the building is completely blocked by pedestrians on all four corners of the intersection. Conclusions are:

1. The system should be used only at those locations where there is considerable conflict between pedestrians and turning vehicles.
2. The system will cause much less congestion if it is possible to alter the timing of the signals at various times of the day.
3. The pedestrian-phased signal cycle appears to function more satisfactorily on one-way streets than on two-way streets because of the lack of left-turn interference between vehicles.
4. The signal lights intended for vehicle operators MUST be invisible to the pedestrians, and the vehicle operators must be unable to see the traffic-light operation on the cross street.
5. Strict obedience by pedestrians and drivers is necessary.

The "scramble" system has proved highly effective in Sacramento. Since its 1952 advent, the majority of the streets at which this system is used have been converted to one-way operation. Thus, improved signal synchronization has been made possible. Public acceptance and approval are high, with continued requests for extension to other areas. Such extensions have not yet been made because pedestrian volumes are not heavy enough to justify the scramble. Since the system has been in operation, pedestrian accidents have been reduced 47%—quite a good argument.

D. JACKSON FAUSTMAN
Traffic Engineer, Sacramento, Calif.

How to get your rightful share of

100 MILLION DOLLARS!

YOU can be sure that in 1955 the nation-wide revenue from metered parking will exceed 100 million dollars! Each community now "metered" —or about to be—is entitled to its rightful share. But what *is* its rightful share? How much will be *lost* in needless meter service work, repair, replacement, non-operative time? How much will be *left* for beneficial use?

These are the *really* important questions . . . and you don't want to take chances. So check *carefully* . . . and when you do you'll choose Duals. That's been the experience time after time.

Write today for helpful, detailed bulletins on SINGLE or DUBL-DUAL Parking Meters for on-street or off-street service. Write *The Dual Parking Meter Company* (Subsidiary of The Union Metal Manufacturing Co.), *Canton 2, Ohio.*

For ex[illegible] value get **DUAL**
PARKING METERS

WORKING TOGETHER—BUT NOT "OUT-OF-SERVICE". Both men may leave their patrol car together in Parma, Ohio. A G-E selective calling system will either "recall" them to their radio, or "leave a call" for them automatically. Here is greater safety for the men, with radio contact assured at all times.

CONTACT YOUR RADIO PATROLMEN EVEN WHILE AWAY FROM THEIR CARS

YOU can contact your radio car patrolmen, even while they are away from their cars, with General Electric all-electronic selective calling equipment. This means no one need stay in the car to receive a radio call—one patrolman in the daytime, two men during dangerous night hours, all fully available for police duty *outside* the car.

With a G-E selective calling system, you can "recall" or "leave a call" for your out-of-car patrolmen.

To reach these patrolmen, the dispatcher sends electronic tones assigned to that car. The tones automatically flash the car's emergency light, or sound the horn. The installation can be made to permit selection of either light or horn, by the patrolman himself, before he leaves the car. AND—if he is out of range of the light or horn, selective calling "leaves the call" by a signal light on the radio control unit. The light remains on until he returns to the car and answers the call.

The selective calling system assures *full-time contact* with *all cars*, and saves valuable air time formerly consumed by "out-of-service" reports.

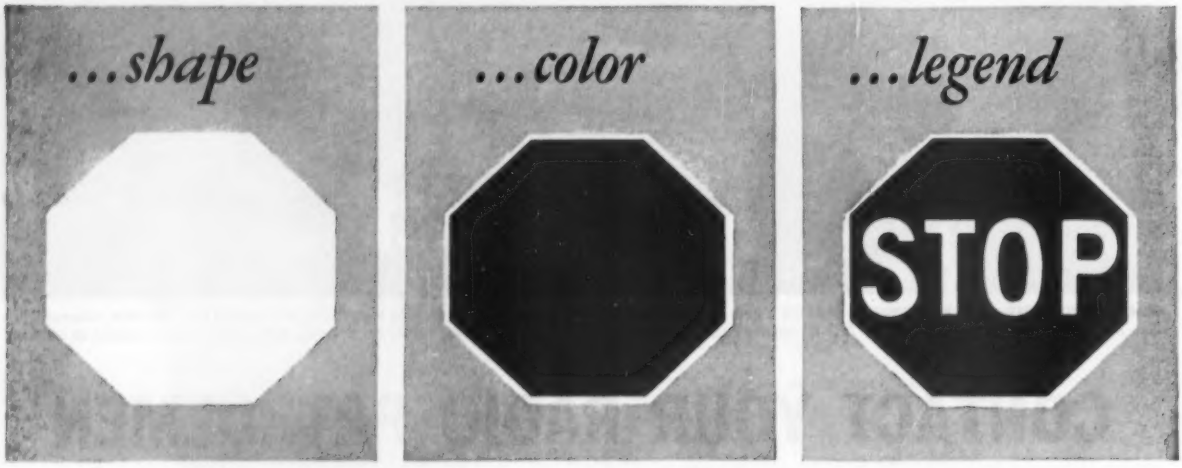
Investigate dependable and versatile G-E *all-electronic* selective calling systems. For full details, write today to: *General Electric Company, Section X1045, Communication Equipment, Electronics Park, Syracuse, New York.*

DISPATCHER at Parma, Ohio, can contact radio car patrolmen—in their car or out. He can automatically "recall" or "leave a call" for patrolmen away from their car with G-E all-electronic selective calling.

Progress Is Our Most Important Product

GENERAL ELECTRIC

This sign says STOP...3 ways at once!



Day and night, rain or shine, red stop signs of "SCOTCHLITE" command attention

REFLECTIVE SHEETING

Now! You can make the switch to America's new stop sign standard* quickly, easily and at low cost. Signs of "Scotchlite" Sheeting give maximum brightness and visibility to shape, color, and legend 24 hours a day in all kinds of weather. *Here are 3 ways to do it!*

1. Buy the Ready-Made Alred-101. A finished sign faced with Wide Angle Flat-Top "Scotchlite" Reflective Sheeting. The ALRED-101 is mounted on 61S-T6, .081 aluminum, makes a sturdy, easy-to-maintain sign. 24", 30", or 36" sizes.

2. Buy Ready-to-Mount Sign Faces. Prepared faces of Wide Angle Flat-Top "Scotchlite" Sheeting come ready to apply to sign blanks in your vacuum applicator. Screened with BPR-standard shape, color, legend. A 24" face costs as little as $3.40.

3. If You Make Your Own! Use Wide Angle Flat-Top silver "Scotchlite" Sheeting and silk screen with "Scotchlite" No. 712 Stop Sign Transparent Red.

*See revisions to the Manual of Uniform Traffic Control Devices, Sept., 1954. Part 1, Section 29.

Complete details on reflectorized red stop signs upon request. Write Dept. AC-45, Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

WIDE ANGLE FLAT-TOP®

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SCOTCHLITE

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REFLECTIVE SHEETING

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3M

Electronic Signals and One-Way Traffic Get 'Em Moving in Houston's Center

By EUGENE MAIER, *Director*
Department of Traffic and Transportation
Houston, Texas

THE *master controller* of Houston's new traffic-control system sees through its "eyes" (two main sets of detectors) the demands of traffic, and accordingly relays orders to its "hands" (the lights).

Electronic counting determines the volume in each direction of major traffic flow, but the Houston system also provides a switch in signal timing from progressive to simultaneous timing of the green lights as the traffic level builds up to a point at which the progressive timing will no longer give a smooth flow of traffic. *Secondary controllers* at each intersection are all connected to an interconnect cable to receive cycle lengths and offset information from the master controller.

A Special Feature

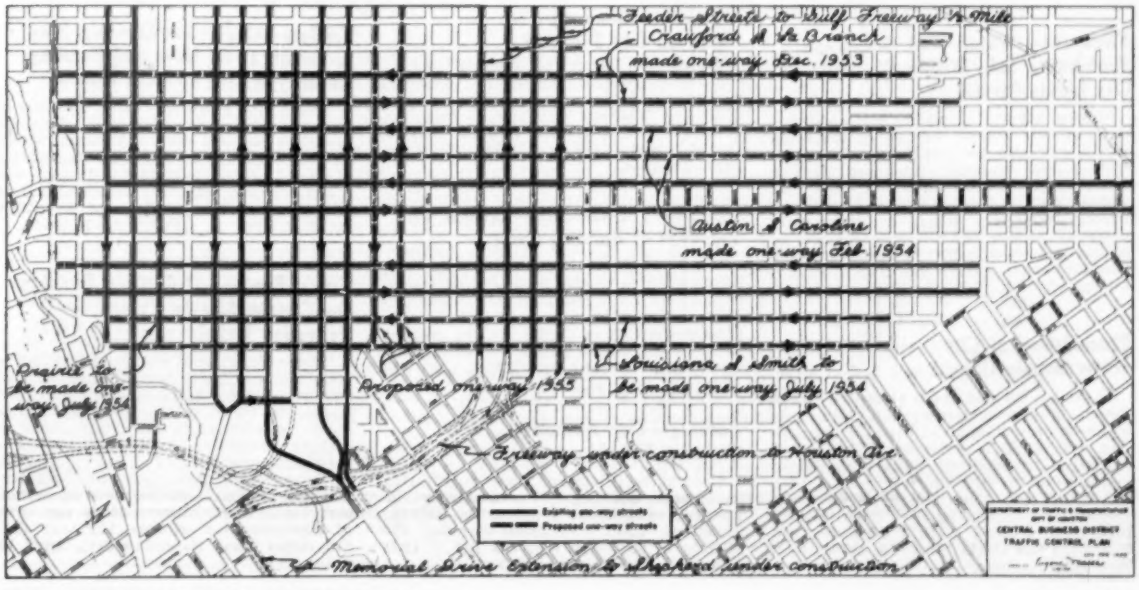
A special feature of this system is a new method of timing green lights whereby the cycle split or division of total cycles between the two streets may be varied from the *master controller* without changing the programming or interval dials of the *local controllers*. It is the first time this idea has been put into effect with this type of equipment.

Based upon the density of traffic, the automatic cycle and off-set selection will provide progressive traffic flow between off-peak traffic periods at speeds of 18 to 22 miles per hour in the central business district and at speeds of 18 to 30 mph on streets leading into the area. Cycle lengths during off-peak traffic periods will vary from 40 to 50 seconds and the off-sets between adjacent intersections will be equal to one-fourth cycle

During periods of peak traffic flow, simultaneous signal timing will be employed in the area of the central business district shown in the accompanying map. The cycle length will vary between 70 and 90 seconds, depending on the traffic density. Platoons of traffic approaching or leaving the area of simultaneous signal operation will move with progressive signal timing. The simultaneous signal timing is employed during the periods of peak traffic movements because, as the blocks become filled with vehicles being unloaded from parking lots and garages, all traffic on a street must move simultaneously or none can move. Under such conditions of traffic, any attempt to develop progressive traffic movement will reduce the capacity of the streets because of the intersection blocking and frequent stopping which will develop as large numbers of vehicles are added to the streets and as turning movements introduce obstructions to progressive traffic flow.

On July 12, 1954, Mayor Roy Hofheinz threw the switch to set into operation the master electronic equipment controlling traffic signal lights at 289 intersections. Of these, 135 were in the central business district, 97 were on the feeder streets to the Gulf Freeway, and 57 were on major thoroughfares leading into the business area.

The key to the plan is the network of 33 miles of one-way streets which are controlled by the new signal system. This was developed under the direction of the Department of Traffic and Transportation. The master control equipment was manufactured by the Automatic Signal Division of Eastern Industries, Inc., Norwalk, Conn. The intersection controllers at the 135 downtown intersections which are of the variable frequency type were manufactured by the General Electric Company. Installation of the equipment was under the direction of S. E. Wilkinson, city electrician.


Feeder streets to Gulf Freeway & Mile
Crawford & St Branch
made one-way Dec. 1953
Austin & Caroline
made one-way Feb. 1954
Louisiana & Smith to
be made one-way July 1954
Proposed one-way 1955
Freeway under construction or Houston Av.
Existing one-way streets
Proposed one-way streets
CENTRAL BUSINESS DISTRICT
TRAFFIC CONTROL PLAN

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Beaches—Ordinance Prohibiting Erection of Buildings on Upheld

Where village ordinance prohibits erection of any new structures on beach and sand dune areas within village, held that ordinance was valid exercise of police power since in case of storm destruction of buildings on beach might also result in destruction of other buildings in village. *King* v. *Incorporated Village of Ocean Beach*, 132 N. Y. S. (2d) 879 (N. Y. Sup. Ct., Nassau Cty., May 11, 1954).

Bees—Public Nuisance

Resident of Town of Lowville has a right to maintain a colony of bees but can be indicted for crime of maintaining a public nuisance if bees hinder surrounding property owners in use of their premises. *People* v. *McOmber*, 133 N. Y. S. (2d) 407 (N. Y. Sup. Ct., Lewis Cty., June 4, 1954).

Contracts—Discretion in Low Bidder Clause

City compelled auditor to sign and register contract entered into by mayor as advised by manager of improvements and parks. City charter requirement that contracts go to the lowest bidder permitted use of discretion in good faith by mayor and manager. *McNichols* v. *City and County of Denver*, 274 P. (2d) 317 (Colo., Sept. 20, 1954).

Emergency Vehicles—Collision—City Recovery

City of Seattle cannot recover damages from driver that could not see red flashing light or hear siren on city vehicle, and when proceeding through an intersection on a green light collided with city vehicle. *Palmer* v. *Cranor*, 273 Pac. (2d) 984 (Wash., Sept. 13, 1954).

Fireworks—Statute and Ordinance Prohibiting Sale Within One Mile of City Limits Invalid

Where statute provided for establishment of new charter for City of Waycross which extended its jurisdiction limits for "police and sanitary" purposes for one mile beyond its defined limits, held that statute and ordinance enacted pursuant thereto regulating sale of fireworks were unconstitutional and city officials had no authority to interfere with business which was conducted outside city limits. *Ball* v. *Peavy*, 82 S. E. 943 (Ga., May 11, 1954).

Fluoridation of City Water Supply Upheld

In action by taxpayers to enjoin fluoridation of city water supply, held, that adoption of ordinance authorizing fluoridation was valid exercise of police power delegated to cities by state constitution and statutes to promote and protect public health and that ordinance does not violate any statutory or constitutional provision. *Dowell* v. *City of Tulsa*, 273 Pac. (2d) 859 (Okla., June 15, 1954). *Reh. den.* July 13, 1954.

Income Tax—City Cannot Make Retroactive

Provision of United States Constitution that no state shall pass any *ex post facto* law prevents city from passing a retroactive income tax ordinance. *Clark* v. *City of Cincinnati*, 121 N. E. (2d) 834 (Ohio Ct. Com. Pl., August 26, 1954).

Loyalty—Teachers' Discharge for Refusing to Answer Questions On Communism

City charter terminating the employment of any employee or city officer refusing to answer questions before any legislative committee on the grounds of self-incrimination is valid. *Daniman* v. *Board of Education of City of New York*, 121 N. E. (2d) 629 (N. Y., July 14, 1954).

Motion Pictures—Ordinance Requiring Permit for Distribution

An ordinance requiring distributors of motion pictures to have a permit before a picture could be distributed and shown in city, held constitutional as city is empowered to censor films and deny permits for pictures found obscene. *American Civil Liberties Union* v. *The City of Chicago*, 121 N.E. (2d) 585 (Ill., Sept. 20, 1954).

Noise—Ordinance Prohibiting at Certain Times with Certain Equipment

City noise ordinance prohibiting the use of noise-creating steam engine, stationary interval combustion engine, air compressor, punch press, press brake or pneumatic hammer on Sundays or weekdays between hours of 7 p.m. and 7 a.m. is discriminatory and invalid. *Stoffel Seals Corporation* v. *Village of Tuckahoe*, 134 N.Y.S. (2d) 114 (Sup. Ct. Aug. 26, 1954).

Nuisance—Mandamus to Abate on City Property

Mandamus cannot be invoked against the Department of Marine and Aviation to compel abatement of a nuisance committed by lessee of city pier. Injunction against lessee is proper remedy. *In re Dunphy*, 133 N.Y.S. (2d) 561 (Sup. Ct. Sept. 11, 1954).

Occupancy Certificate—Refusal for Violation of Building Code

Where foundation of private house was constructed in unsafe manner and not in compliance with building code, held private taxpayer can maintain an action against the City of Oyster Bay to prevent issuance of a certificate of occupancy. *Mechtold* v. *Tilford*, 133 N.Y.S. (2d) 583 (Sup. Ct. June 23, 1954).

Parking—City Authority Creation Upheld

Ordinances relying on state constitution in creating a city parking authority empowered to condemn property for parking areas are valid. *Peekskill Parking Authority* v. *L. B. Oil Co.*, 133 N.Y.S. (2d) 538 (Sup. Ct., Aug. 6, 1954).

Private Roads—Prohibiting Certain Sales of Land Thereon

Ordinance of Village prohibiting sale of land on private roads "used for access to more than one dwelling house" held unlawful interference with property rights. *Huber* v. *Village of Richmond Heights*, 121 N.E. (2d) 457 (Ohio, Ct. Com. Pl. Feb. 8, 1954).

Public Housing—Taxpayers' Right To Enjoin City from Destroying

Taxpayer can maintain an action against the city council to enjoin the city from destroying low-cost apartment buildings on the ground that the council's order was an arbitrary abuse of discretion. *Burton* v. *City of Reidsville*, 83 S. E. (2d) 651 (N. C., September 22, 1954).

Water and Sewage Rates Higher for Nonresidents

City permitted to charge higher rates for nonresidents for use of city-owned water and sewage system. *Schley* v. *City of Gilmer*, 271 S.W. (2d) 100 (Tex. Civ. App. Sept. 9, 1954).

Tax Exemptions—Agreement on Between Municipalities and Institution Against Public Policy

Where town and village entered into agreement with educational institution purporting to concede taxation on one tract of realty in exchange for exemption for another tract, held that agreement was illegal and void and that attempt by municipal officials to barter in tax exemptions of properties was contrary to statute and public policy. *Masters School* v. *Town of Greenburgh*, 132 N.Y.S. (2d) 169 (N.Y. Sup. Ct., Westchester Cty., April 20, 1954).

Trailers—Ordinance Limiting Stay In Camps to 60 Days and Banning Re-entry Within 90 Days Upheld

Where city ordinance limits parking of occupied trailers to period of 60 days and prohibits re-entry into any camp within city for period of 90 days after expiration of 60-day period, held that ordinance was not an unconstitutional exercise of legislative power. *Stary* v. *City of Brooklyn*, 121 N.E. (2d) 11 (Ohio, July 7, 1954).

Truck Routes—Ordinance Banning On Certain Streets Except for Deliveries Upheld

Where defendant was found guilty of violating ordinance prohibiting driving vehicle used for transportation of goods, wares, or merchandise, upon designated street, except while receiving goods or making deliveries along such road, and then only by entering and leaving by nearest intersecting street, held that judgment affirmed, and that ordinance was neither discriminatory nor unconstitutional. *City of Youngstown* v. *Kochis*, 121 N.E. (2d) 213 (Ohio App., Mahoning Cty., April 17, 1953).

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

April 4-8—New York, N. Y.
AMERICAN FILM ASSEMBLY (Waldorf-Astoria Hotel). For information address the American Film Assembly, Film Council of America, 600 Davis St., Evanston, Ill.

April 11-14—Lafayette, Ind.
PURDUE ROAD SCHOOL. (Union Building, Purdue University) Exec. Sec., Ben H. Petty, Professor of Highway Engineering, Purdue University, CE Bldg., Lafayette, Ind.

April 13-15—Hutchinson, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section. Annual Meeting (Baker Hotel). Sec.-Treas., Harry W. Badley, 119 W. Cloud St., Salina, Kans.

April 13-15—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., E. Bruce Meier, Asst. Prof. of Civil Engineering, University of Nebraska, Lincoln, Nebr.

April 13-15—New York, N. Y.
CONFERENCE ON BIOLOGICAL WASTE TREATMENT, ITS PRINCIPLES AND APPLICATIONS. (Manhattan College). For information address W. W. Eckenfelder, Asst. Prof., Department of Civil Engineering, Manhattan College, New York 71, N. Y.

April 14-15—Miami, Fla.
AMERICAN SHORE AND BEACH PRESERVATION ASSOCIATION. Annual Meeting. Sec.-Treas., Peter J. Cannon, 1060 Broad St., Newark, N. J.

April 14-16—Chandler, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Annual Meeting (San Marcos Hotel). Exec. Sec., Quentin Mees, 721 N. Olsen St., Tucson, Ariz.

April 18-20—Quebec City, Que.
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Chateau Frontenac). Sec., A. E. Berry, Director, Ontario Department of Health, Parliament Bldgs., Toronto 8, Ont.

April 18-21—Milwaukee, Wis.
BUILDING OFFICIALS CONFERENCE OF AMERICA. Annual Conference (Hotel Schroeder). Exec. Sec., Paul E. Baseler, 110 E. 42nd St., New York 17, N. Y.

April 20-22—Buffalo, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Meeting (Hotel Statler). Sec., Kimball Blanchard, Rensselaer Valve Company, 56 Grand St., White Plains, N. Y.

April 21-23—Alexandria, La.
LOUISIANA MUNICIPAL ASSOCIATION. Annual Meeting (Hotel Bentley). Sec.-Treas., Mrs. Douglas M. Warriner, 538 Raymond Bldg., Baton Rouge, La.

April 24-28—Seattle, Wash.
AIRPORT OPERATORS COUNCIL. Annual Meeting (Hotel Olympic). Exec. Sec., Robert C. Mayer, 1625 K St. NW., Washington 6, D. C.

April 28—Butte, Mont.
MONTANA SEWAGE WORKS ASSOCIATION. Annual Meeting (Finlen Hotel). Exec. Sec., H. W. Taylor, 910 Helena Ave., Helena, Mont.

April 29-30—Butte, Mont.
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Finlen Hotel). Sec., A. W. Clarkson, Acting Chief, Water Section, Division of Environmental Sanitation, State Board of Health, Helena, Mont.

May 1-5—New Orleans, La.
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Jung Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

May 2-4—Washington, D. C.
CHAMBER OF COMMERCE OF THE U. S. Annual Meeting (National Chamber Building). Exec. Vice-Pres., Arch N. Booth, 1615 H St. NW., Washington 6, D. C.

May 3-5—Jacksonville, Fla.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Meeting (Hotel George Washington). Gen. Mgr., Alex Radin, 1757 K St. NW., Washington 6, D. C.

May 4-6—Pittsburgh, Pa.
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Webster Hall). Sec.-Treas., L. S. Morgan, Division of Engineering, 415 First National Bank Bldg., Greensburg, Pa.

May 8-10—Washington, D. C.
NATIONAL HIGHWAY USERS CONFERENCE. Biennial Meeting (Mayflower Hotel). Dir., Arthur C. Butler, 966 National Press Bldg., Washington, D. C.

May 9-11—Lafayette, Ind.
INDUSTRIAL WASTE UTILIZATION CONFERENCE (Purdue Union Club). Exec. Sec., Don. E. Bloodgood, Professor of Sanitary Engineering, CE Bldg., Purdue University.

May 16-20—Cincinnati, Ohio
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Netherlands-Plaza Hotel). Exec. Sec., Charles S. Morgan, 60 Batterymarch St., Boston, Mass.

May 17-20—Chicago, Ill.
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (LaSalle Hotel). Pres., Arthur J. Shinners, Town Hall, Brookline, Mass.

May 19-21—New York, N. Y.
UNITED STATES CONFERENCE OF MAYORS. Annual Conference (The Waldorf-Astoria). Exec. Dir., Paul V. Betters, 730 Jackson Pl. NW., Washington 6, D. C.

May 19-21—Yakima, Wash.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Hotel Chinook). Sec., Fred D. Jones, District Supervisor, Room 305, City Hall, Spokane, Wash.

May 22-25—Detroit, Mich.
AIR POLLUTION CONTROL ASSOCIATION. Annual Meeting (Sheraton-Cadillac Hotel). Exec. Sec., H. C. Ballman, 4400 Fifth Ave., Pittsburgh 13, Pa.

May 24—Hackensack, N. J.
AMERICAN PUBLIC WORKS ASSOCIATION—New York–New Jersey Metropolitan Chapter. Spring Meeting (Hackensack Civic Center). Sec., William S. Foster, 470 4th Ave., New York 16, N. Y.

***May 31-June 1—Washington, D. C.**
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Sec., J. G. Burke, 1720 M St. NW., Washington 6, D. C.

June 1-3—Asbury Park, N. J.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Berkley Carteret). Sec., Chief Edwin J. Clark, Box 271, Wayne, Pa.

June 7-10—Denver, Colo.
ASSOCIATION OF STATE PLANNING AND DEVELOPMENT AGENCIES. Annual Meeting (Shirley-Savoy Hotel). Exec. Vice-Pres., L. H. Prince, 1026 17th St. NW., Washington 6, D. C.

June 8-10—Albert Lea, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting (Albert Lea Hotel). Exec. Sec., C. C. Ludwig, University of Minnesota, 15 University Library Bldg., Minneapolis 14, Minn.

June 8-11—Buck Hill Falls, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Buck Hill Falls Inn). Sec.-Treas., Henry C. Lamparski, 1327 Pacific Ave., Brekenridge, Pa.

June 9-10—Tacoma, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Winthrop Hotel). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

June 9-11—McCall, Idaho
IDAHO MUNICIPAL LEAGUE. Annual Meeting (Shore Lodge). Exec. Sec., Robertson W. Smith, Box 787, Weiser, Idaho.

***June 10-11—Ocean City, Md.**
MARYLAND MUNICIPAL LEAGUE. (George Washington Hotel). Exec. Sec., Edmund C. Mester, P. O. Box 276, College Park, Md.

June 12-17—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION. Annual Conference (Conrad Hilton Hotel). Sec., Harry E. Jordan, 521 Fifth Ave., New York, N. Y.

***June 13-14—Albany, N. Y.**
NEW ENGLAND SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Joint meeting with the New York Section. Sec.-Treas., Henry F. Munroe, 75 Paine Ave., Cranston 10, R. I.

June 15-17—Buffalo, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Statler). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

June 16-18—Miles City, Mont.
MONTANA MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., Alfred F. Klinger, Box 51, Kalispell, Mont.

June 21-24—Minneapolis, Minn.
THE AMERICAN INSTITUTE OF ARCHITECTS. Annual Convention (Radisson Hotel). Convention Manager, Arthur B. Holmes, 1735 New York Ave. NW., Washington, D. C.

June 22-24—Columbus, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Conference. (Deshler-Hilton.) Sec.-Treas., Ward E. Conrad, 301 Ohio Departments Bldg., Columbus 15, Ohio.

June 22-24—Glenwood Springs, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Meeting (Colorado Hotel). Exec. Dir., Jay T. Bell, 327 Norlin Library, Boulder, Colo.

June 22-24—Deadwood, S. D.
LEAGUE OF SOUTH DAKOTA MUNICIPALITIES. Annual Meeting (Franklin Hotel). Exec. Dir., J. G. Barger, P. O. Box 984, Aberdeen, S. D.

***June 22-24—Rochester, Minn.**
CENTRAL STATES SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Kahler Hotel). Sec.-Treas., 713 Chapman St., Madison, Wis.

June 26-28—Jackson, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Meeting (Heidelberg Hotel). Exec. Sec., George Lemon Sugg, 316 E. Pearl St., Jackson, Miss.

(Continued on page 207)

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STOCKPILING AND NATURAL BANK LOADING are routine work for the sturdy, powerful LoDaL. Hydraulic power, controlled from the cab, lifts the big bucket overhead to self-load a 5-yard truck body in 2½ minutes. LoDaL can load sand, gravel, crushed rock, ashes or refuse.

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Municipal & Civic Publications

Easy-to-Read Reference Book on Local and State Governments

STATE AND LOCAL GOVERNMENT IN THE UNITED STATES—*By Austin F. Macdonald. Thomas Y. Crowell Co., 432 Fourth Ave., New York 16, N. Y.* 1955. 667 *pp.* $6.

This is basically a textbook on the forms, powers, and functions of local and state governments. Regardless of the purpose, its simplicity of writing style and up-to-date informative value make it a very worthwhile reference volume for anyone actively engaged in municipal government.

Nine of the 31 chapters in the book deal exclusively or primarily with local government, and 13 other chapters contain substantial sections on various aspects of local government and administration. There are two chapters on the organization of city government, one on the government of counties, and one on towns, townships, villages, and special districts. The relations of the federal government and the local units are given a separate chapter; so, too, is the government of metropolitan areas. There are also chapters dealing with such primary local matters as recreation and education.

Capacity Studies on Highway Construction

THE HIGHWAY CONSTRUCTION INDUSTRY IN A TEN-YEAR NATIONAL HIGHWAY PROGRAM—*Prepared by the American Road Builders' Association, World Center Building, Washington 6, D. C.* 1955. 56 *pp.* $1.

At its annual convention held in New Orleans, January 13, the American Road Builders' Association presented these reports evaluating the ability and readiness of the engineering profession and the highway industry to plan, design, and execute a program to eliminate during the next 10 years the $101,000,000,000 deficiencies in the nation's highways.

Register of Zoos and Aquariums

ZOOS AND AQUARIUMS IN THE UNITED STATES AND CANADA—*Compiled by The American Association of Zoological Parks and Aquariums. For sale by American Institute of Park Executives, Inc., 143 S. Lincoln Ave., Aurora, Ill.* 1954. 19 *pp.* $5.

In addition to listing under a city the principal zoo and aquarium, this register —now in its 2nd edition—gives such pertinent information as the institution's address, officials, hours, fees, attendance, total specimens and, in some cases, a breakdown of specimens.

Effect of Property Tax Exemptions of Local Revenues

PROPERTY TAX EXEMPTIONS IN CONNECTICUT TOWNS AND CITIES, 1929-1953—*By Beldon H. Schaffer and Patricia Stuart. The Institute of Public Service, University of Connecticut, Storrs, Conn. February* 1955. 35 *pp.* 25 *cents.*

This study presents the trend and current status of general property tax exemptions in the towns and cities of Connecticut. The predicament of rising tax exemptions and the increasing inadequacy of property taxes to meet local revenue needs make it important that the full extent of property exemption be known and placed in proper perspective with other aspects of the local revenue problem.

Council-Manager Facts and Directory

RECENT COUNCIL-MANAGER DEVELOPMENTS AND DIRECTORY OF COUNCIL-MANAGER CITIES.—*The International City Managers' Association, 1313 East 60th St., Chicago 37, Ill.* 1955. 32 *pp.* $1.

The International City Managers' Association here gives such information on the council-manager plan as its purposes, duties of the manager, votes on adoption and abandonment of the plan, publications dealing with that form of government, and summaries of other city-manager statistics for 1954. The main section of the pamphlet lists cities and counties operating under the plan, when it became effective, the name of the manager, and the year of his appointment.

How Employment and Population Growth Are Related

EMPLOYMENT EXPANSION AND POPULATION GROWTH — *The California Experience, 1900-1950. By Margaret S. Gordon. University of California Press, Berkeley 4, Calif. October* 1954. 192 *pp.* $3.50.

The relationship of employment growth to population growth in community development has been a subject of intensive study for many years. In this latest book to deal with this important subject, the entire state of California becomes the "community" under discussion.

Between 1850 and 1950, while the nation's population increased roughly sixfold, California's increased more than sixtyfold. Although it does not attempt a technical appraisal of the adequacy of California's resources to support a growing population, this book examines historical trends and fluctuations in the growth of population and employment, in order to illuminate future developments. It deals with such questions as these: Is population likely to outrun the expansion of employment? Have certain industries reached a stage of maturity in which further growth of employment is unlikely? How have the marked fluctuations in the rate of population growth been related to changes in economic conditions?

Urbanization in the South

THE URBAN SOUTH — *Edited by Rupert B. Vance and Nicholas J. Demerath. The University of North Carolina Press, Chapel Hill, N. C.* 1954. 307 *pp.* $5.

This book is a collection of 14 essays that discuss various aspects of the rapid process of urbanization in our southern states. The dust jacket notes that the title of the book might well have been, "The South Goes to Town," and backs this allegation with the fact that during the last two decades the South's urban population has climbed from one-third to one-half the region's total.

The anatomy of the South's process of urbanization is analyzed in the first group of essays. The emergence of cities, the occupational shifts and economic changes occurring as part of this process, and the migration and fertility factors in the growth of Southern cities are discussed.

The characteristics of Southern urban areas are considered in the next group of essays, and in the final third of the book, the effects of the spread of urbanism on Southern ways of living are discussed. A very excellent chapter on city planning by F. Stuart Chapin, Jr., contains a refreshing definition of city planning.

Louis Brownlow's Autobiography

A PASSION FOR POLITICS: The Autobiography of Louis Brownlow — *First Half. University of Chicago Press, Chicago 87, Ill.* 503 *pp. plus preface and index.* 1955. $7.50.

To "Brownie's" host of friends in public administration, journalism, and other fields, this book offers fascinating reading. It is the self-told graphic story, aided by a photographic memory, of the first 36 years of Louis Brownlow's life—a life of imagination and achievement that has now passed the three-quarter century milestone.

From his birth on August 29, 1879, in the little town of Buffalo, in the Ozark Mountains of southwestern Missouri, this "first half" of Mr. Brownlow's autobiography ranges over a wide variety of incidents and anecdotes up to his appointment in January 1915, by President Wilson, as a commissioner of the District of Columbia.

"Brownie's" passion for politics dates back to the Cleveland-Blaine presidential campaign of 1884, when at the age of 5 he had the thrill of watching his first torchlight procession.

Educated at home by his parents, the young Brownlow learned to set type at the age of 9. At 14 he and his father became "editors and publishers" of a small local newspaper. At 21 he was a reporter on the *Nashville Banner* and at 23 on the Louisville *Courier-Journal*. Later journalistic experience included the city editorship of the *Louisville Times* and other newspaper connections, terminating with nine years as special writer and roving international correspondent of the Haskin Syndicate.

Louis Brownlow's reputation as a "raconteur of parts" finds ample justification in the way he recounts the experiences and reflections of his first 36 years. It is the fervent hope of THE AMERICAN CITY that he may retain his health and vigor—and his indelible memory — until long after completion and publication of the second half of this remarkable work.

Weights and Measures

ANNUAL REPORT, 1953-1954—*Department of Licenses, Weights, and Measures. Dearborn, Mich. October* 1954. 22 *mimeo pp.*

In addition to reporting on the 39th National Conference on Weights and Measures, this annual report enlightens the citizens of Dearborn on the work and personnel of the city's Department of Licenses, Weights, and Measures.

Papers on Municipal Assessment

PROCEEDINGS, 1954 SCHOOL FOR MUNICIPAL ASSESSORS—*Issued by the League of Wisconsin Municipalities, 30 E. Johnson St., Madison 3, Wis.* 1955. 107 *mimeo. pp.*

The papers presented at the 1954 School for Municipal Assessors, conducted by the assessors' section of the League of Wisconsin Municipalities in cooperation with the state department of taxation, cover the following subjects: technical and legal aspects of the assessment process, the valuation of residential and commercial land, the valuation of residential and commercial property and of special buildings on a physical basis, and the valuation of property by the use of income.

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Manufacturers of fully automatic and manual parking meters.

Good Analysis of Local Development Corporations

THE COMMUNITY DEVELOPMENT CORPORATION IN KANSAS—*By Gordon F. Davis, Bureau of Business Research, School of Business, University of Kansas, Lawrence, Kans.* 1954. 64 *pp.*

Between 1940 and 1950 nearly 80,000 persons migrated from Kansas in spite of the fact that the same decade was the most prosperous in the history of the state. One explanation of this trend is that those who left felt that economic opportunities were better in areas other than Kansas. The outmigration has meant that many communities were faced with a decline. To forestall such declines many localities formed community development corporations to attract new business and industry. This book presents a detailed analysis of the number, activities, financial structure and accomplishments of community development corporations in Kansas. Methods used in forming such corporations, how they are related to local Chambers of Commerce, what the occupations are of the boards of directors, and whether the corporations are organized for profit or nonprofit are discussed.

Capital Budget for Austin, Texas

CAPITAL IMPROVEMENTS PROGRAM, 1954-1959 *City Planning Commission, P. O. Box 1160, Austin 64, Texas. August* 1954. 65 *pp.* $1.

This is a handsome presentation of the first annual capital improvement program for Austin, Texas. The booklet presents an over-all picture of the improvements proposed by the Planning Commission and gives a picture of the financing problems presented by the program. Maps illustrating the locations of the proposed improvements are contained in the report as are tables showing the data and financing methods for each project.

Business District Problems

A CHECKLIST OF THE PROBLEMS OF THE CENTRAL BUSINESS DISTRICT—*Undated.* 20 *pp.*

A BIBLIOGRAPHY FOR THE CENTRAL BUSINESS DISTRICT — *Compiled by Wm. H. Qualls. Upper East Tennessee Office of the Tennessee State Planning Commission, Municipal Bldg., Johnson City, Tenn. Undated.* 11 *pp.*

These two publications are companion pieces that have been designed so that they can be used together as a frame of reference against which city officials, planners, downtown businessmen, and chambers of commerce can check the particular problems of their own business districts. The Bibliography, which has section headings that are identical with those in the Checklist, can be referred to for literature dealing with the listed problems.

New York Provides Social Contact for Its Aged

DAY CENTERS FOR OLDER PEOPLE—*By Henry L. McCarthy. American Public Welfare Association, 1313 E. 60th St., Chicago 37, Ill. December* 1954. 15 *pp.* 30 *cents.*

In this fourth of a series of reports from public welfare departments on How Public Welfare Serves Aging People, are described the day centers run by the New York City Department of Welfare. These day centers provide a professionally supervised, planned activity program for persons 60 years of age and over. There are now 14 such centers in New York City, staffed by the Department of Welfare and financed by public and private funds. The booklet lists some of the more popular activities, and tells of various programs and services carried on by the members themselves.

Treatise on Awarding Public Contracts

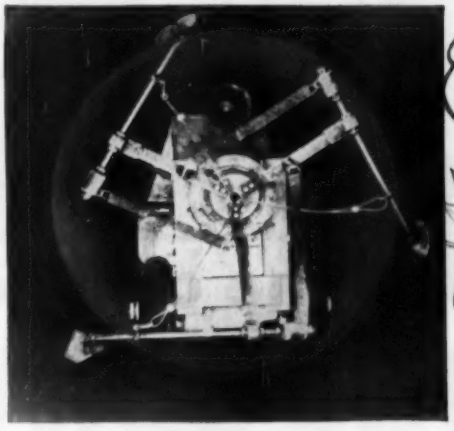
CRITERIA FOR AWARDING PUBLIC CONTRACTS TO THE LOWEST RESPONSIBLE BIDDER—*By Nelson Rosenbaum. Reprinted from the* Cornell Law Quarterly *of November, 1942, by Albert Pleydell Associates, Inc., 15 Park Row, New York 38, N. Y.* 16 *pp.*

Believing that the standards for determining the lowest responsible bidder, which Mr. Rosenbaum discusses and analyzes in this article, are still valid today, Albert Pleydell Associates have reprinted this treatise as a public service.

Government Finances in City Areas

LOCAL GOVERNMENT FINANCES IN CITY AREAS IN 1953 — *State and Local Government Special Studies No. 39. Bureau of the Census. For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.* 1955. 29 *pp.* 25 *cents*

Since some local government services are provided by governments other than the city corporations—counties, school districts, special districts—figures limited to the city corporations do not give a complete picture. The purpose of the present report is to bring together, for the 41 largest cities in the United States, financial data that will provide comparative figures as to total governmental operations.



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Plan for Metropolitan Government for Miami

Urban Transportation

REPORT OF THE GOVERNOR'S COMMISSION ON URBAN MASS TRANSPORTATION IN WISCONSIN—*State Office Building, Madison, Wis.*

This report presents further arguments in favor of improving public transportation as a means of solving the downtown traffic problem. The recommended actions seem fairly tame, and the Commission itself admitted that it had neither the time nor the available funds to study the transit problem as it exists in detail in each community.

But some interesting facts are turned up. The report points to an experiment in St. Louis where, after due publicity, service was doubled on a waning transit line with the result, however, that passenger use increased only fractionally. Another example given was the City of New Orleans where, in spite of the maintenance of very low fares on the city-owned transit lines, passenger use declined in the same way that it had in cities where fares had been raised. For a detailed account, a description is given of the city acquisition and operation of a failing bus system in Janesville, Wis. With their experiences, and statistics showing the experience of other city-operated transportation systems, the report concludes that mere city acquisition and operation is no answer to the public transit problem.

The more one reads of reports such as these, the more one feels the need for some basic research that will place in focus the present and future functions of public transportation in city areas.

Reappraisal of New York's Blighted Areas

MASTER PLAN OF SECTIONS CONTAINING AREAS SUITABLE FOR DEVELOPMENT AND REDEVELOPMENT—*City Planning Commission, 2700 Municipal Bldg., New York 7, N. Y. Adopted December 30, 1954. 21 pp.*

Adopted as part of the Master Plan of the City of New York, this revision brings up to date some of the technical data. It had become apparent from analyses of the 1950 Census data and from field study that some areas that had undergone marked physical improvement could no longer be classified as appropriate for clearance and redevelopment, while other areas had deteriorated and should be so designated.

In addition to providing an inventory of major blighted areas, the plan represents the Commission's selection of areas within which development and redevelopment should be encouraged and also a selection of areas shown as suitable for predominantly residential use.

Youthful View of Baltimore's Affairs

BALTIMORE, CITY OF PROMISE.—*Produced by Senior High School Pupils of the Baltimore Public Schools. Edited by Albert J. Silverman. Address orders to Harry Bard, Curriculum Bureau, Department of Education, Baltimore, Md. 1953. 375 pp. $3.50. (Checks payable to Mayor and City Council of Baltimore).*

To talk of encouraging the youth of a community to be sensitive to the problems and needs of their home city is one thing; to do something about it is another. Baltimore has done something about it, and this book is the result. Written by high school students, under the direction and guidance of their history teachers, the book represents the end product of a two-year study of Baltimore's history, social and civic agencies, economic life, population, educational and recreational resources, housing conditions and living standards, traffic and transit problems, and health and safety facilities.

In preparing their chapters, the students made field trips and excursions and interviewed community leaders in an effort to study the community's problems at first hand. In developing the book both teachers and students were aware that the project would result in the first genuinely comprehensive book on Baltimore and that it would serve as a textbook for future classes studying Baltimore's importance and function as one of the nation's great cities.

With the completion of this volume, the Baltimore Department of Education, which conceived and sponsored the project, furthered the goal of making the city a live and vital topic for its youth by establishing a Model Youth City Council where young people prepared bills dealing with the improvement of Baltimore. Other cities and towns searching for techniques to encourage the interest of youth in municipal affairs might well study this Baltimore project.

Kill Them Before They Bite

MOSQUITOES, Their Bionomics and Relation to Disease—*By William R. Horsfall. The Ronald Press Company, 15 E. 26th St., New York 10, N. Y. 1955. 723 pp. $16.*

This highly technical volume presents a complete summary of research on mosquitoes to date; offers a systematic treatment of egg, larva, pupa, and adult for each species; gives full information on control methods in use today; provides details of the spread of disease, and includes a 79-page bibliography. The information is set forth according to genus and species for easy reference, and will prove of interest especially to sanitarians and epidemiologists.

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Plan for Metropolitan Government for Miami

THE GOVERNMENT OF METROPOLITAN MIAMI —*Public Administration Service, 1313 E. 60th St., Chicago 37, Ill. 1954. 194 pp. $5.*

The standard Metropolitan area including and surrounding Miami, Fla., is one of the fastest growing in the country. In 1920 it comprised a total of 43,000 inhabitants; today it has a population of over 600,000 persons; by 1960, according to current predictions, over 1,000,000 will be living there; and by 1970, it is expected that the Miami area will be inhabited by 2,000,000 persons. It is natural, then, that an area facing a continued rapid growth, and having at present a diffused governmental organization with little power to deal effectively with metropolitan problems would commission an extensive study of the proper form for an area-wide government to handle such metropolitan problems.

This report is an authoritative one that other metropolitan areas can profit from. It finds that the 26 local governments in Dade County, surrounding and including Miami, are all oriented toward trying to take care of their own problems. The study also finds that the present Dade County government is not properly constituted to handle area-wide problems for a series of well-documented reasons.

Extensive use of annexation, city-county consolidation, federation of existing municipalities, and other well-known means of achieving an area-wide government are discussed for the Miami area, but each in its turn is rejected for a solution that combines the most meritorious features of the various proposals.

Laborers' Attitudes Toward City Government Analyzed

ATTITUDES OF LABOR TOWARD CITY GOVERNMENT. *Governmental Research Center, University of Kansas, Lawrence, Kans. December 1954. 32 pp.*

How do laborers and working men feel about their city governments in Kansas? Voting has been the traditional device used to test their attitudes in the past, but information that exposes opinion on technical issues rarely emerges from voting results. To fill the gaps in understanding how laborers feel about their local governments, this study was made.

Such questions as these were posed to union workers: "Do you think the City Council considers the workers' viewpoints sufficiently?", "If you had the opportunity, would you vote to keep your City Manager?", and "When it comes to spending money, do you think City Services could be better?" The study was designed to help city officials who are responsible for the decision-making to understand what some of their neighbors think about municipal government.

Downtown Business Districts

CENTRAL BUSINESS DISTRICT STUDIES — *By Raymond E. Murphy, J. E. Vance, Jr., and Bart J. Epstein. Reprinted from* Economic Geography, *Clark University, Worcester 10, Mass. January 1955. 98 pp. $3.*

The three articles reprinted in this bulletin concern delimiting the central business district, a comparative study of nine central business districts, and the internal structure of the CBD. In addition, the bulletin contains a bibliography and a table showing the proportions of various specific land uses for each of the nine districts studied and for an average of the nine.

Sociological Analysis of American Community Life

AMERICAN SOCIETY: URBAN AND RURAL PATTERNS—*By Edmund de S. Brunner and Wilbur C. Hallenbeck. Harper & Bros., 49 E. 33rd St., New York 16, N. Y.* 1955. 601 *pp.* $6.

This is a comprehensive new textbook on the sociology of our urban and rural areas. Up to date and simply written by two experienced leaders in the social science field, the book, besides being an admirable basis for a course on community life, can serve as a reference work for the shelf of any municipal official.

Part I of the book analyzes the culture and basic ideals of our society as a background and frame of reference. Part II examines expanding human relationships —family, neighborhood, community. Part III analyzes the kinds of American communities, their characteristics and their differences. Part IV discusses functions and structures of communities, and deals at length with such institutions as education, business, religion, health, and recreation. The final section devotes five chapters to major problems of community life and possible ways of solving them.

Effects of Metropolitan Life on Modern Society

THE METROPOLIS IN MODERN LIFE — *Edited by Robert Moore Fisher. Doubleday & Company, Inc., Garden City, N. Y.* 1955. 401 *pp.* $6.

This is a literate and engrossing analysis of the effects on modern life that have resulted from the growth of the metropolis. The more than 22 papers and commentaries contained in this volume were prepared by a distinguished group of scholars from Great Britain, France, and the United States for a conference held in 1954 in connection with the Bicentennial of Columbia University. The subjects discussed included the following: Economic Advantages and Disadvantages of Metropolitan Concentration; The Influence of the Metropolis on Concepts, Rules and Institutions Relating to Property; The Influence of Science and Technology on the Metropolis; Contributions of the Metropolitan Community to the Political Institutions of a Free Society; and The Search for the Ideal City. Among the participants in the conference were Luther Gulick, P. Sargent Florence, Myres S. MacDougal, Richard Neutra, Charles Abrams, Catherine Bauer, and many others.

Although the conference did not provide conclusive answers to the perplexing problems propounded, it did provide a fine survey of the growth and present status of metropolitan life.

Cleaning Up the Comics

COMIC BOOK REGULATION — *By Edward L. Feder. Bureau of Public Administration, University of California, Berkeley 4, Calif.* 1955. 62 *mimeo pp.* $1.25.

In the current drive to clean up comic books, which are considered by many to be a cause of juvenile delinquency, federal, state, and local legislators are attempting to draft proper legislation—to protect the public without infringing upon the constitutional guarantees of due process and freedom of the press. This study presents the legislative action and experience of various states and municipalities in the field of comic books.

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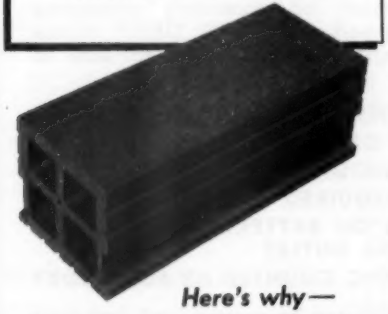

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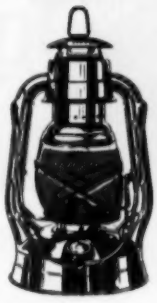

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Public School Financing

How Do We Pay for Our Schools? *A Guide to Understanding Public School Finance. National Citizens Commission for the Public Schools, 2 W. 45th St., New York 36, N. Y. December* 1954. 76 *pp.*

Local groups studying the problems of classroom shortages, teacher shortages, educational programs, etc., must sooner or later ask what expenses are involved, whether the schools are getting the most for their money, and where the money is coming from. To help answer these and allied questions about school finance, the National Citizens' Commission for the Public Schools has prepared this booklet.

It is divided into two major sections. The first part gives the reader an over-all view of some of the main issues involved in public school finance. The second part is a guide for interested groups to use in arriving at an understanding and a solution of school finance problems in their communities and states.

Financing Public Education in the Decade Ahead—61 *pp.*

This is an important publication. The National Citizens' Commission for the Public Schools has prepared estimates of public school needs and costs for the decade ahead. In examining its figures, the Commission concludes that the additional funds needed in the future over those now being spent can be made available. It further says that the increased expenditures will not be excessive compared with the expected growth of the national economy. The basic problem, it notes, is to select the best method of making an adequate portion of the increased national production and income available for education. Simply presented facts and statistics back up the Commission's conclusions.

Future for Rochelle, Ill.

Rochelle Plans for the Future—*A Comprehensive Plan for Rochelle, Ill.—Prepared for the Rochelle Plan Commission by Evert Kincaid and Associates, Consultants, 105 W. Madison St., Chicago 2, Ill. May* 1954. 46 *pp.*

This is comprehensive development plan for a community of some 6,000 persons in north central Illinois. A population of 10,000 is estimated by 1970. New sites, additions to existing sites, the integration of neighborhood parks and playgrounds, the development of bypass routes for important and through highways, and the improvement of water and sanitary facilities are among the recommendations of the plan. A feature of special interest is the recommendation that more than a mile of minor streets be vacated as excessive and unnecessary. This represents approximately 5% of the total street length in the town. The report recommended that some of the vacated areas be used as hard-surfaced play areas.

Other Reports Received

Airports and Aviation

San Francisco, Calif.—Progress Report on First Six Months' Operation of San Francisco's New Air Terminal Facilities. Airport Department of Public Utilities Commission of City and County of San Francisco, Calif. March 1955. Tables. 3 mimeo. pp.

Annexation

Covina, Calif. — Annexation and Subdivision Activities, 1945 to 1955. Available from Neil Goedhard, City Administrator. Tables. Graphs. Unpaged.

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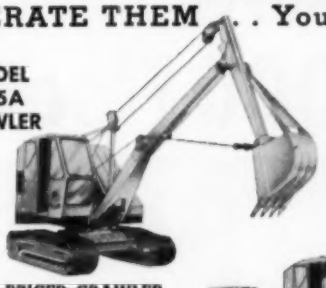

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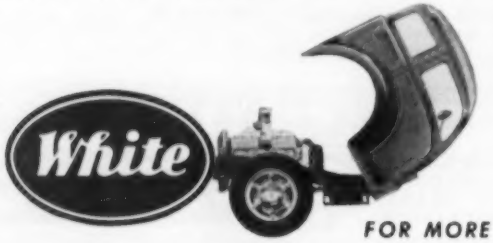

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Celebrations

MICHIGAN—Ten Symposia of the Centennial Year, 1955. General Chairman of the Symposia, Dr. Thomas H. Osgood, Dean, School of Graduate Studies, Michigan State College, East Lansing, Mich.

Finance and Taxation

DALLAS COUNTY, TEXAS — County Auditors' Annual Report for Year Ending December 31, 1954. Report Compiled by Burnett E. Loudder. Available from Office of County Auditor's Records Bldg., Dallas 2, Texas. Report No. 1,055. Tables. Unpaged.

KANSAS CITY, MO. — Annual Financial Report. Fiscal Year Ended April 30, 1954. Illus. Tables. 111 pp.

LOS ANGELES, CALIF.—A Study in Integration. XIV. Finance and Taxation. Copies can be secured from the Haynes Foundation, 916 Consolidated Bldg., 607 South Hill St., Los Angeles 14, Calif. Maps. Tables. Graphs. 137 pp. Cloth, $2.75; paper, $2.25.

MINNEAPOLIS, MINN.—Final Budget Estimate for 1955. Issued by the Board of Estimate and Taxation. Tables. 73 pp.

MOUNT UNION, PA.—Annual Report for the Year Ending December 31, 1954. Available from Melvin H. Diven, Borough Secretary. Tables. 21 pp.

OAK PARK, ILL.—Budget for 1955. Submitted by Mark E. Keane, Village Manager. Tables. 56 pp.

VIRGINIA — Tax Rates in Certain Virginia Towns. Report No. 372. Published by League of Virginia Municipalities, 905 Travelers Bldg., Richmond 19, Va. February 1955. Tables. 39 pp. Domestic rate, $1; foreign, $1.25.

GENERAL — Summary of Governmental Finances in 1953. Available from the Bureau of the Census, Washington 25, D. C. Tables. Graphs. 31 pp.

——State and Local Government Revenue in 1953. No. 37. Available from the Bureau of the Census, Washington 25, D. C. Tables. Graphs. 27 pp.

Industry and the Community

OKLAHOMA CITY, OKLA. — What's Going on . . . Available from Richard W. Poole, Industrial Division, Okahoma City Chamber of Commerce. January 1955. Illus. Unpaged.

Intergovernmental Relations

LOS ANGELES, CALIF.—Metropolitan Los Angeles a Study in Integration. XV. Intergovernmental Relations. Winston W. Crouch. Published by The Haynes Foundation, 916 Consolidated Bldg., 607 South Hill St., Los Angeles 14, Calif. 1954. Map. Cloth, $2.75; paper, $2.25.

Laws and Legal Decisions

NEW JERSEY—1954 Laws of Interest to New Jersey Municipalities. Fourth Annual Edition. Published by New Jersey State League of Municipalities, 603 Trenton Trust Bldg., Trenton 8, N. J. 55 pp. $1.

Parks and Recreation

GREENSBORO, N. C. — Parks and Recreation Annual Report for 1954. Presented by the Department of Parks and Recreation. Illus. 11 pp.

Planning, Housing, Zoning

CHICAGO, ILL.—An Estimate of Metropolitan Chicago's Future Population: 1955 to 1965. Report to Chicago Plan Commission and Housing and Redevelopment Coordinator. Published jointly by The Chicago Community Inventory, University of Chicago, and Scripps Foundation, Miami University, Oxford, Ohio. February 1955. Unpaged. 15 cents.

PHILADELPHIA, PA.—Population and Housing. Map Series 2. Part B: Characteristics of Housing by Census Tracts. City Planning Commission, Market St. National Bank Bldg., Market and Juniper Sts., Philadelphia 7, Pa. November 1954. Maps. 35 pp.

NEW ORLEANS, LA. — The Comprehensive Plan for New Orleans Housing. Chapter 10: First Edition, September 1954. City Planning Commission, New Orleans, La. Maps. 69 pp.

Public Safety

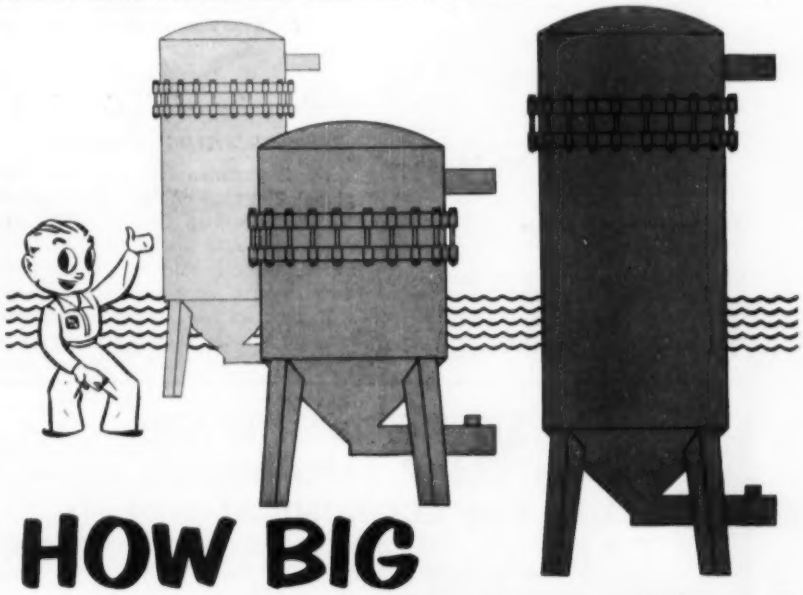
BEVERLY HILLS, CALIF.—Public Safety in Beverly Hills. Sixth in a Series of Progress Reviews. Vol. II, No. 2. January 1955. A Report from the City Council. Pamphlet. Illus.

Public Utilities

CLEVELAND, OHIO—A Report of Cleveland's Public Utilities for Use and Distribution in 1954-1955. Department of Public Utilities, City Hall, Cleveland, Ohio. Illus. Tables. 32 pp.

Public Welfare

NEW YORK, N. Y.—Statistical and Research Activities of Municipal Welfare, Health, and Education Agencies of New York City. Welfare and Health Council of New York City, 44 E. 23rd St., New York 10, N. Y. 20 pp. $1.



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New York City. Welfare and Health Council of New York City, 44 E. 23rd St., New York 10, N. Y. 29 pp. $1.

CALIFORNIA—Care for Children in Trouble. Public Affairs Pamphlet No. 217. Summary of the Report of the California Committee on Temporary Child Care. Published by the Public Affairs Committee, 22 E. 38th St., New York, N. Y.

Public Works

NEW YORK, N. Y. — Department of Public Works' Annual Report, 1954. Presented by Frederick H. Zurmuhlen, Commissioner of Public Works. Illus. 135 pp.

Refuse Collection and Disposal

DELAWARE COUNTY, PA.—The Refuse Problem in Delaware County. A Survey of Refuse Collection and Disposal. Prepared by the Pennsylvania Economy League, Inc., 1616 Market St., National Bank Bldg., Philadelphia 7, Pa. Illus. Tables. 58 pp. Appendices.

LOS ANGELES, CALIF.—Report No. 3. Conference on Incineration, Rubbish Disposal and Air Pollution. Edited by Francis R. Bowerman, Air Pollution Foundation, 704 S. Spring St., Los Angeles 14, Calif. January 1955. Illus. 51 pp.

Sewerage and Sewage Treatment

COLORADO — Water and Sewer Services in Colorado. Published by the Colorado Municipal League, 327 Norlin Library, Boulder, Colo. 23 pp. $3.

KENOSHA, WIS. — 1954 Fourteenth Annual Report. Sewage Treatment Plant. Submitted by Frank I. Vilen, Superintendent. Tables. Graphs. 12 pp.

GENERAL—National Plumbing Code. Minimum Requirements for Plumbing. ASA A40.8-1955. Published by The American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N. Y.

Water Supply and Treatment

TEXAS—Twenty-first Report for the State of Texas Covering Biennium, September 1, 1952 to August 31, 1954. Presented by the Board of Water Engineers, 302 W. 15th St., Austin, Texas. Graphs. Maps. 84 pp. Appendices.

WYANDOTTE, MICH.—61st Annual Report of the City. Submitted by the Municipal Service Commission. Illus. Tables. 28 pp.

GENERAL—Standard Specifications for Fluosilicic Acid. AWWA B703. American Water Works Association, Inc., 521 Fifth Ave., New York 17, N. Y. 5 pp.

University of N. Carolina Assistantships Available

THE Department of City and Regional Planning of the University of North Carolina, Chapel Hill, announces assistantships for 1955-1956, available for candidates for the master's degree. Several assistantships will be awarded carrying stipends ranging from $800 to $1,200. Applications must be received by May 1, 1955. Apply to Department of City and Regional Planning, University of North Carolina, Chapel Hill.

Park Area "Borrowed" And Replaced in Redevelopment Plan

PART of a local park will be lost and later replaced to assist in the relocation of families living on the site of a proposed Passaic, N. J., redevelopment project. The nearly vacant north end of Passaic's Pulaski Park is to be used for the construction of moderate rental garden apartments to accommodate a portion of the families to be relocated from substandard houses in the 12-acre project area. When redevelopment is completed an equal area of cleared land will be turned back to the local park department. This plan will not only aid in relieving the relocation problem but will result in a park of more useful shape, according to local officials.

The estimated net cost of the project is $1,266,340, two-thirds of which will be paid for by the federal government.

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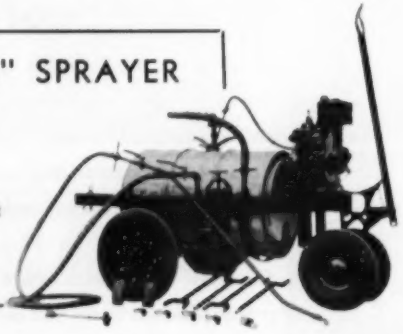

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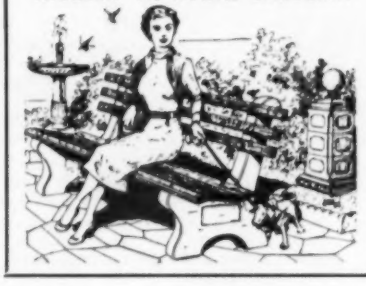

Conventions—When and Where

(Continued from page 193)

June 26-July 1—Atlantic City, N J.
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., Robert J. Painter, 1916 Race St., Philadelphia, Pa.

June 26-29—Detroit, Mich.
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Meeting (Sheraton Cadillac Hotel). Corr. Sec., Bradford Williams, 9 Park St., Boston 8, Mass.

July 17-20—Richmond, Va.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (John Marshall Hotel). Exec. Sec., Keith L. Seegmiller, 1616 Eye St. NW., Washington, D. C.

July 17-20—Edgewater Park, Miss.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (Edgewater Gulf Hotel). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

***July 20-23—Chattanooga, Tenn.**
NATIONAL SECRETARIES ASSOCIATION. Annual Meeting (Read House). Exec. Sec., Helen J. Boyle, 25 E. 12th St., Kansas City, Mo.

***July 24-27—Erie, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Convention (Lawrence Hotel). Exec. Dir., 320 State Theatre Bldg., Harrisburg, Pa.

July 24-27—Seattle, Wash.
NATIONAL MUNICIPAL LEAGUE. Annual Meeting. For information, address Mr. C. A. Crosser, Exec. Sec., of the Municipal League of Seattle, Marion Bldg., Seattle 4, Wash.

***Aug. 1-5—Santa Barbara, Calif.**
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Mar Monte Hotel). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

***Aug. 22-24—State College, Pa.**
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Conference (The Pennsylvania State University). For information, address Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

***Aug. 28-Sept. 1—Edmonton, Alberta**
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Meeting (Macdonald Hotel). Exec. Dir., George S. Mooney, Office M-16, Mount Royal Hotel, Montreal Quebec, Canada.

***Sept. 7-9—Saranac Inn, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Meeting (Saranac Inn). Sec., Kimball Blanchard, Rensselaer Valve Co., 56 Grand St., White Plains, N. Y.

***Sept. 12-14—Lexington, Ky.**
AMERICAN WATER WORKS ASSOCIATION—Kentucky–Tennessee Section. Annual Meeting (Phoenix Hotel). Sec., J. Wiley Finney, Jr., 553 S. Limestone St., Lexington, Ky.

Sept. 14-16—Flint, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Sec. T. L. Vander Velde, Chief, Section of Water Supply, State Department of Health, Lansing 4, Mich.

Sept. 18-22—Lake Placid, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New England Section. Annual Meeting (Lake Placid Club). Sec., G. C. Bogren, Weston & Sampson, 14 Beacon St., Boston 8, Mass.

***Sept. 18-23—Louisville, Ky.**
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Kentucky Hotel). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln Ave., Aurora, Ill.

Sept. 21-23—Columbus, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Neil House). Sec., M. E. Druley, Dayton Power & Light Com., Wilmington, Ohio.

Sept. 27-Oct. 1—Denver, Colo.
NATIONAL RECREATION CONGRESS (Shirley-Savoy Hotel). Asst. Sec., Robert R. Gamble, 315 Fourth Ave., New York 10, N. Y.

Oct. 2-5—Milwaukee, Wis.
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress and Equipment Show (Hotel Schroeder, Municipal Auditorium). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Oct. 2-6—Philadelphia, Pa.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Benjamin Franklin Hotel). Exec. Sec., Leroy E. Wike, The Mills Bldg., Pennsylvania Ave., at 17th St. NW., Washington 6, D. C.

Oct. 10-13—Atlantic City, N. J.
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual meeting (Ambassador Hotel). Exec. Sec.,-Editor, Ralph E. Fuhrman, 325-26 Illinois Bldg., Champaign, Ill.

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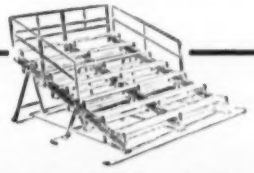

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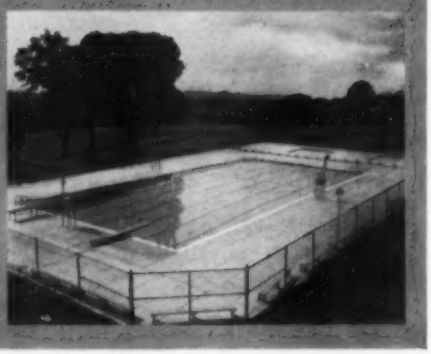

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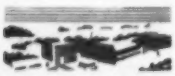

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Purchasing News

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

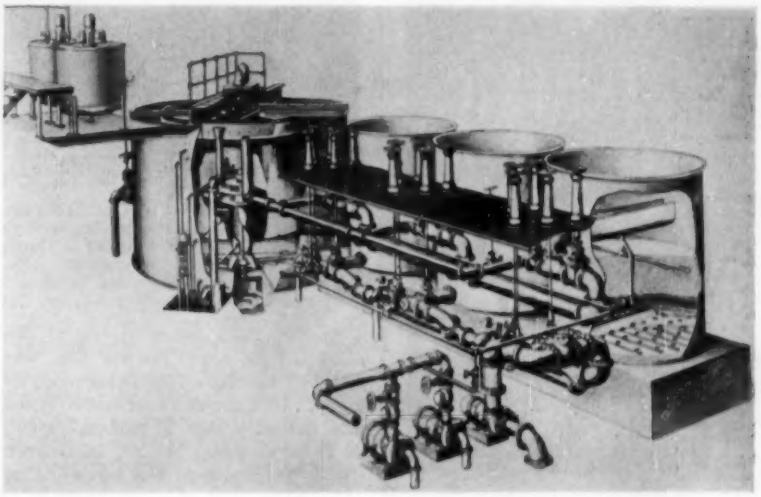
Low-Cost Water Treatment for the Small Community

Small communities interested in economical water treatment are offered a compact and completely integrated package-type water treatment plant designed by the GRAVER WATER CONDITIONING CO., 216 W. 14TH ST., NEW YORK 11, N. Y. The plant combines all equipment from inlet to outlet, including the clearwell, chlorinator, wet or dry chemical feeders and proportioners, gravity or pressure filters, level and flow controls and instruments, and interconnecting piping. Standard layouts for the package plant are available in capacities from 100,000 to 2,000,000 gallons daily. Special layouts may be obtained for larger capacities.

The heart of this low-cost plant is the Graver Reactivator, a cold-process water treating unit used for selective or simultaneous removal of turbidity, color, organic matter, taste, odor, iron, manganese, and hardness from water supplies. It is a self-contained, high rate unit of the solids-contact type, embodying within a single tank all the established functions of coagulation, flocculation, sedimentation, and sludge removal.

Operation of the new plant is simple, requiring only part-time supervision of a non-technical operator. Moreover, treatment results are guaranteed for every installation.

Detailed information on Graver's high-rate package water treatment plant is available directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 710.



The heart of this economical water treatment plant is a Graver Reactivator.

An Electronic Plant Supervisor

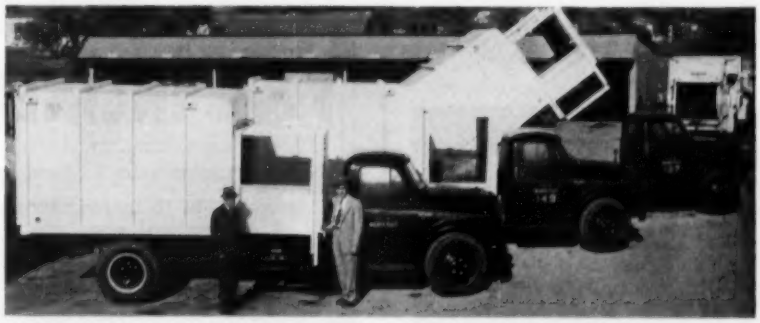
A new "electronic supervisor" switches lights on or off, starts and stops motors, and opens and closes valves in water and sewage plants. Yet, it requires no special, complicated wiring system.

This new International Business Machines Corp. system uses carrier-current signals and operates over existing electrical circuits. Furthermore, it has a simple central operations panel by which a superintendent can check on his remote, electrically controlled services by glancing at the indicator lights. Such automatic control and supervision permit more economical operation of the machinery and services in a plant by utilizing them only when they are needed. The result: savings in fuel, water, electrical power; and the pumps, motors and valves will be available for extra years of service.

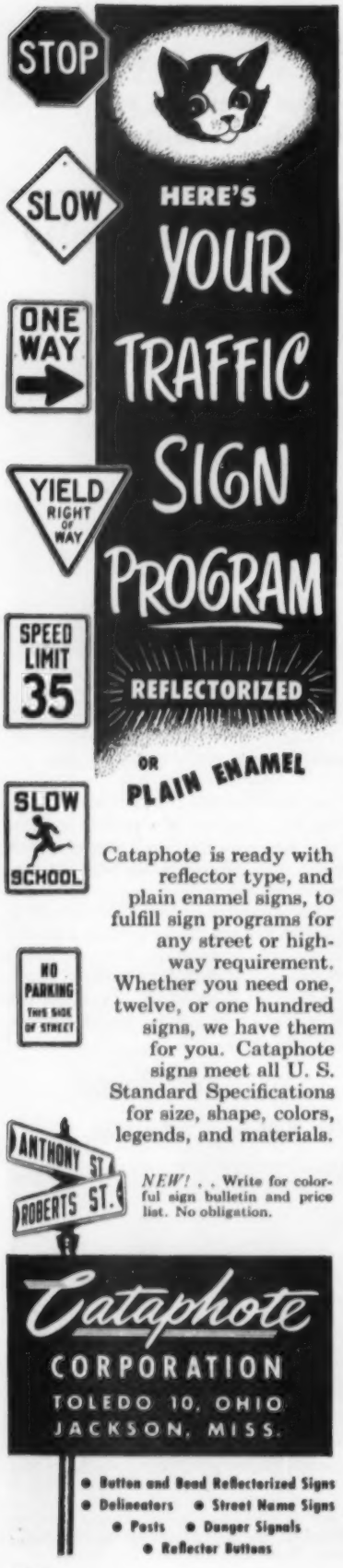
The basic components of the system are its central operations panel, transmitter, and coded relays. The central operations panel is the source of the system's directions or "commands." Through its relays and an electronic transmitter, "command" pulses are sent to coded relays for operation of electrical services, with the coded relays rejecting all pulses other than those to which they are preset to respond.

For illustrated booklets describing IBM Central Control Systems, write DEPARTMENT OF INFORMATION, INTERNATIONAL BUSINESS MACHINES CORP., 590 MADISON AVE., NEW YORK 22, N. Y., or use the Post Card on the colored page in this section. Circle No. 709.

Wichita Falls Improves Its Refuse Collection



These three 16 cubic-yard Hydepak refuse collection bodies purchased recently by the City of Wichita Falls, Texas, are part of a long-range maintenance and improvement program for the city's sanitation department. Don Huffines, Wichita Falls' superintendent of sanitation, is shown inspecting the new hydraulic collection units with City Manager H. A. Thomason. Economical Hydepak refuse collection bodies are available from the Triad Sales Company, 3918 Harry Hines Blvd., Dallas 21, Texas.



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Purchasing News

Chicago's Newest Firefighter

(Foreground) Alderman P. J. Cullerton (third from left), chairman of the Chicago City Council finance committee, presents keys to the new 63-foot aerial ladder truck to Fire Commissioner Michael J. Corrigan. With them are (left to right) Albert H. Petersen, first deputy fire marshal; John J. Haberkorn, fire marshal; Joseph Flahive, 6th Division fire marshal; and William Maloney, second deputy fire marshal.

Another truck company, No. 57, located at 3918 North Harlem Ave., was added to Chicago's Fire Department recently. In dedication ceremonies at the new station, Walter T. Alberts, captain of Truck Company No. 57, directed his staff of firemen through a demonstration of a new 63-foot aerial ladder truck, a product of the FOUR WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS.

The new FWD truck is a combination tractor and semi-trailer designed with 4-wheel-drive. It features 324 feet of straight beam Douglas fir wood ladders, including an 85-foot extension ladder, a 50-foot ground extension ladder with stay

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poles, two 35-foot extension ladders, three wall ladders 28, 25 and 22 feet long, a 16-foot inside extension ladder, and two roof ladders 16 and 12 feet long.

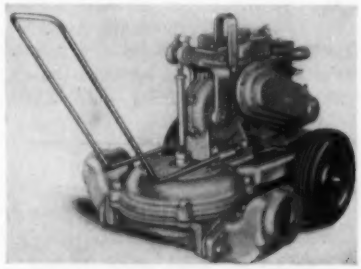
The aerial extension ladder, when released, snaps upward instantly and the fly ladder extends manually, a combined operation that is completed in seconds.

Additional data on FWD's aerial ladder trucks are available directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 711.

Lightweight Diaphragm Pump

A new diaphragm pump with a variable speed, rubber cushioned vertical stroke plunger is especially designed for applications involving high suction lifts, seepage control or small well point dewatering jobs. The unit will handle almost any pumping operation from dewatering to pumping sludge. Called the Skwee-Gee pump, it is made by the CONSTRUCTION MACHINERY CO., WATERLOO, IA.

The Skwee-Gee has a standard plunger stroke of 3 inches with an alternate 2¾-inch stroke available by simple adjustment. The lightweight pump body, valve housing, gear case and frame are constructed of aluminum. The mechanical components and engine are sized to provide operation at maximum capacity with heads up to 40 feet. Suction and discharge connections are 3 inches bushed



to 2 inches, enabling the pump to be used as either a 2- or 3-inch unit.

Bulletin FDL-3-55 provides a detailed description of the new Skwee-Gee pump. For your copy, write the Construction Machinery Co. directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 715.

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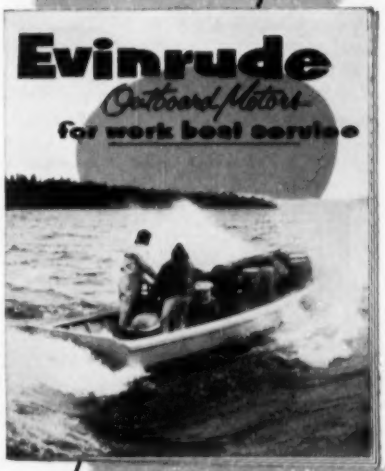

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Sprayer Penetrates Dense Foliage

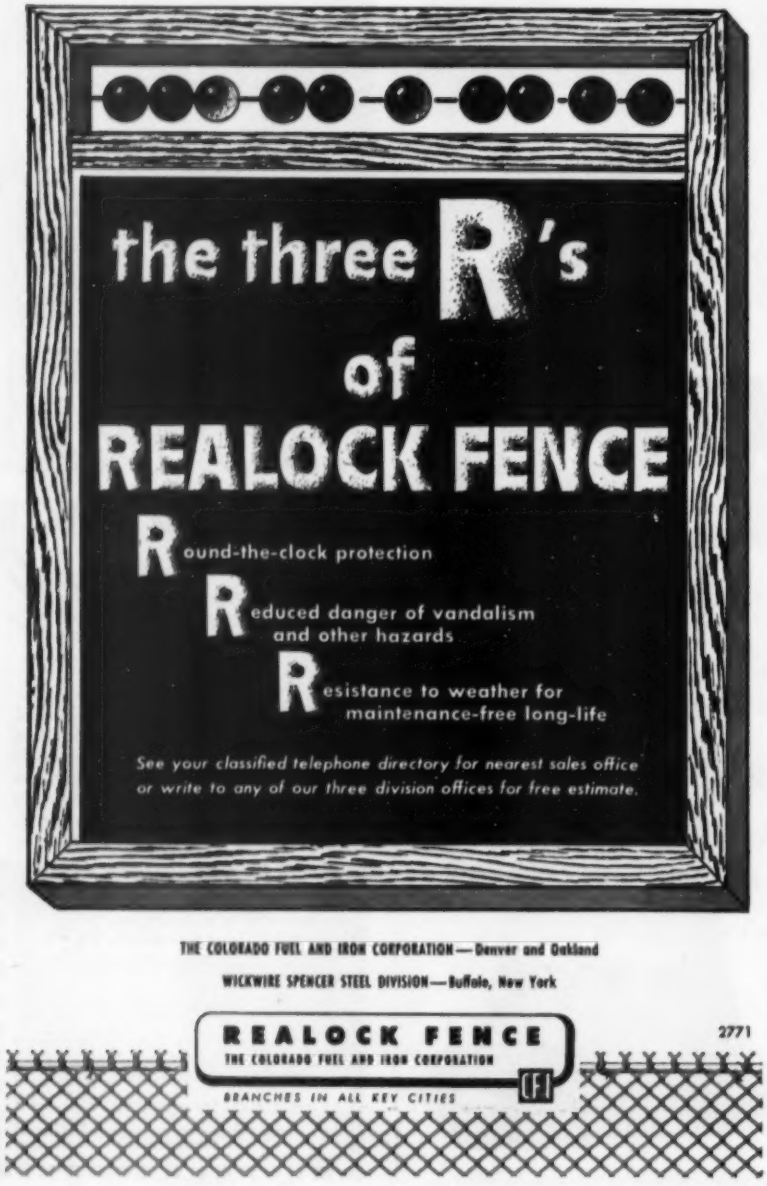
Cities can protect shade-trees and assure adequate fly and mosquito control as well, with the new John Bean Rotomist "75," a compact, easy-to-handle unit that delivers 19,000 cubic feet of air per minute. The unit's high-pressure spray delivery at 400 psi, its axial flow fan and straight-through air flow provide thorough coverage at heights up to 100 feet and complete penetration of dense foliage. The Rotomist rotates through a full 360° circle and the discharge head pivots through a 110° arc from vertical to 20° below horizontal.

Spray is delivered to the Rotomist's whirl-mist nozzle by a completely enclosed, 2-cylinder, plunger-type pump, the John Bean Royalette. Pump and fan are powered by a 25-hp engine and the unit has a 75-gallon spray tank.

The rotating section of the Rotomist requires only a 46-inch turning radius. The sprayer is available both in a trailer-mounted model weighing only 2,260 pounds, or in a truck-mounted model. The latter mounts on any flat-bed truck and weighs only 1,800 pounds.

Trailer-mounted Model "75" Rotomist.

The Rotomist "75" and other sprayers for municipal applications, are described in the new 1955 Rotomist catalog. For your copy, write the JOHN BEAN DIVISION, FOOD MACHINERY & CHEMICAL CORP., LANSING 4, MICH., or you may use the Post Card on the colored page in this section. Circle No. 729.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2771

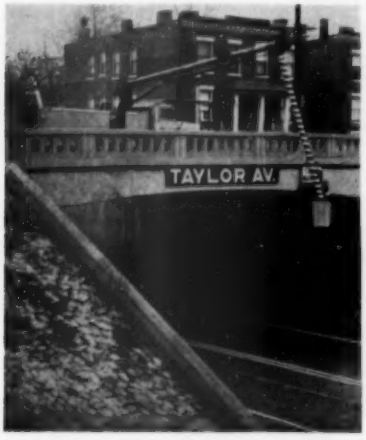
For Inaccessible Maintenance Jobs

The new "Sky-Master" hydraulic aerial beam consists of a revolving mast and a pair of hydraulically-actuated beams, constructed to carry two men up, out, over or down to an unlimited number of positions within the operating range.

The supporting mast, which rotates on roller bearings, can be revolved continu-

ously in either direction. The inner beam is easily moved to any point in an 85° arc. The outer beam, moved hydraulically in combination with drive pulleys and ¾-inch wire rope, can be spotted in any position within an operating arc of about 265°. Movement of the mast and each beam is controlled by independent levers.

Work baskets can be moved around obstacles to reach any working position in



the range of movement. By means of a parallel linkage, the basket floors remain in a horizontal position at all times.

Available in two sizes, the "Sky-Master" may be installed on a Powers-American body or any unit designed to fit individual work requirements. Series AB-37 has a maximum ground-to-basket floor height of 37 feet, enabling two men to reach working areas 42 feet above ground. Series AB-43 has a maximum ground-to-basket floor height of 43 feet, providing a comfortable working height of 48 feet.

The construction, operation and safety features of the new "Sky-Master" are described in *Powers-American Bulletin No.* 410. For your copy, write the McCABE-POWERS AUTO BODY CO., 5900 N. BROADWAY, ST. LOUIS 15, MO., or you may use the Post Card on the colored page in this section. Circle No. 725.

Produces Pure, Clear Swimming Pool Water

Used to clarify the water in public swimming pools, Purecel filters are easy to install and simple to operate, producing a clear, highly polished effluent quickly and economically. The inexpensive installation requires a minimum of floor space, features a low backwash consumption, and is unaffected by sudden surges or rapid increase in flow. The filters are available as individual units or as part of a complete filter system.

Each Purecel filter consists of a cylindrical steel tank which is divided into two compartments by a support plate which holds the filter elements. Raw water enters the lower compartment, flows through the filtering elements into the effluent compartment and is then discharged.

The pressure type Purecel filter is constructed in sizes ranging from 0.33 to 154 square feet. Recommended filter rates vary from less than 2 gpm to 3 gpm per square foot of filter area, depending upon the application.

Additional information on efficient diatomaceous earth filtration for swimming pools is contained in *Sup. Bulletin* 1800-3. For your copy, address PROPORTIONEERS, INC., 358 HARRIS AVE., PROVIDENCE 1, R. I., or you may use the Post Card on the colored page in this section. Circle No. 723.

Built in super strength at the point where ordinary refuse cans wear out makes the Nesco Streak-O-Strength last and last.

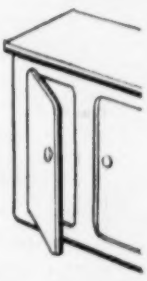
Sanitation approved because of *Leakproof* construction and Lok-Tite cover. Animal and insect-proof.

Rain drain cover sheds water and concave bottom prevents rust.

Oversize sturdy handles for easier handling by refuse collectors.

Hot dipped galvanized for longest life . . . built to the highest standards of the industry.

Heavy duty and standard weights available in *full capacity* 16, 20, 24 and 32 gallon sizes.



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Dept. 50A, Richmond, Calif.

Please mail more information on Butler steel buildings.

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City _____ State _____

New Clamshell Bucket For H-3 Hydrocrane

Curved bowl sections of the bucket speed loading and provide maximum penetration.

The truck-mounted Bucyrus-Erie H-3 Hydrocrane can now use a new ⅜-yard clamshell bucket to increase its digging power. The special bucket uses two hydraulically-operated rams to handle bowl action rather than a single center ram. These rams, coupled with improved leverage, provide about 42% more force to the lips of the bucket at the point of closing.

The lower ends of the rams are attached directly to the upper edge of the bowl sections. Since the dual rams—one for each bowl—never extend into the bucket, there is no load interference. Bucket deck area and internal size have been increased, and struck measure capacity is now 10.4 cubic-feet.

The bowl sections of the new bucket are curved to provide maximum penetration and quick loading with minimum heeling. In addition, bowl pivot shafts have been replaced with short pins so there is nothing to obstruct loads in the buckets. Holes are also provided in the bowls for side cutter teeth.

For further information on this dual-ram clamshell bucket for use with the

This Jaeger pumps all the water a 2" hose can handle

Other sizes 1½" to 10"

Hi-performance Jaeger Model 2PN will actually pump all the water that can be pulled through a 2" suction line under average working conditions. Delivers 10,000 gph when operating at only 2400 to 2550 rpm (as much as 400 rpm below the speeds of similar ordinary pumps). Weighs only 160 lbs. on base, 190 lbs. on pneumatics. For complete information on this model or other Jaeger pumps, see your Jaeger distributor or send for Catalog P-4.

THE JAEGER MACHINE COMPANY 505 Dublin Avenue Columbus 16, Ohio

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Purchasing News

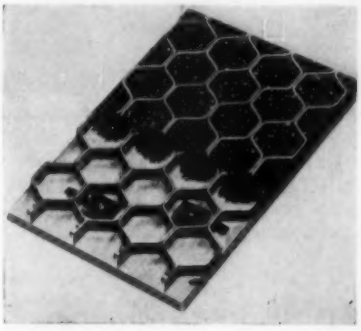
Hydrocrane, write directly to the BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS., or you may use the Post Card on the colored page in this section. Circle No. 717.

Protects Rough-used Floors, Drives

A new Hexteel safety floor armor that has less weight per square foot and a greater exposed steel surface is currently being offered by the KLEMP METAL GRATING CORP., 6603 S. MELVINA AVE., CHICAGO 38, ILL.

This has been designed to create an extremely durable floor, able to withstand abnormal wear and rough usage, although it is economical to install. It is particularly well fitted for public works maintenance buildings, water, sewage, park and street department buildings, parking areas, airport runways, loading docks and other points having heavy traffic. It can be used for resurfacing existing concrete or wood floors. The exposed steel surface armor is 18.15 square inches per square foot, and the weight of the new Hexteel is 1.7 pounds per square foot.

New Hexteel Surface Armor is filled with a hot or cold mastic. When installed, Hexteel forms a continuous steel floor armor which eliminates cracking, swelling, warping and shrinking. These armored floors are impervious to wheels



of any size and are designed to take the brunt of rolling loads.

Additional information on usages and installation of the new Hexteel is available by writing directly to the manufacturer, or use the Post Card on the colored page in this section. Circle No. 707.

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Purchasing News

A Low-Cost Solution To Your Parking Problems

"X" parking barriers are easily installed in any parking area, regardless of whether it is paved with concrete, asphalt, macadam, rolled gravel or cinders. Using only a yardstick and a hammer, you simply locate the brackets and drive in pins. Installations may be laid out for staggered or straight-line perimeter or island parking, with brackets indicating the spacing limitations.

The barriers are designed sufficiently high to stop a car easily. They present no drainage problem, eliminate problems connected with rotting wood, and are easy to clean under. The brackets are constructed of sturdy aluminum castings to guard against rust and corrosion, and may be used with standard 4" x 4" timbers. The entire installation requires minimum maintenance.

How "X" parking barriers will aid the efficient operation of public parking lots, is explained in literature from FRED EX ENTERPRISES, INC., 301 E. OHIO ST., CHICAGO 11, ILL. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 700.

"X" parking barriers are constructed just high enough to stop cars easily.

To Make Aluminum Street Signs

A complete line of aluminum blanks, sheets and fasteners for long-lasting traffic and regulatory signs is now available from the ALUMINUM COMPANY OF AMERICA, 1501 ALCOA BLDG., PITTSBURGH 19, PA. These sign materials will provide strong, lightweight signs immune to changing weather conditions and damage by vandalism. Even though the message film is broken or perforated, discoloring streaks are avoided and the sign's message is preserved.

While Alcoa will not produce completed signs, over 50 of the company's distributors throughout the country will offer quick service on sign blanks of various shapes and sizes, complete with aluminum fasteners for proper construction. These fasteners add to the life of signs by preventing corrosion and discoloration.

In conjunction with this new service for customers, Alcoa has announced the

KOHLER Electric Plants

move jobs faster where the work is done

Compact portable model provides low-cost power for chain saws used in pruning and in cutting up fallen trees after storms; also for grass shears, hedge trimmers, carpenters' saws, drills, electric spades, pipe threaders and cutters. Two-wheel rubber-tired hand truck available.

Other models, 500 watts to 35 KW, for street repair trucks, police and fire departments, civil defense centers. Also stand-by models to insure uninterrupted power for hospitals, sewage treatment and filtration plants, communication systems, schools, when central station service is cut off.

Write for folder C-23.

MODEL 1.5MS, *1500 watts, 115 volt DC. Manual starting; 101 lbs., handles for carrying. Also 115 volt AC; 130 lbs.*

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Purchasing News

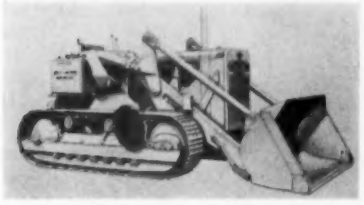
Purchasing News

appointment of Melvin R. Schuster as market supervisor for the sign industry, a new position with the company.

Information on Alcoa's complete line of aluminum sign materials is available directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 718.

New 2-Yard Tractor Shovel

With a low gear speed of 1.4 mph, the 2-yard Model HD-9G tractor shovel develops 22,980 pounds pull at the draw-



bar, or push at the shovel—enough to handle the toughest digging or ripping operations quickly and easily. The new unit produces 100 net flywheel-hp and 82 drawbar-hp simultaneously. Designed for longer life, simple operation, maximum visibility and minimum maintenance, it is available from the ALLIS-CHALMERS MFG. CO., TRACTOR DIV., MILWAUKEE 1, WIS.

A new bucket design for the 2-yard HD-9G facilitates digging, loading and dumping operations and reduces spillage. The bucket is designed with a deeper box section and replaceable wear plates of tough, abrasive steel. A new type clutch lining operates longer between adjustments, reduces lever pull, and offers increased clutch life.

The new hydraulic system for the tractor shovel practically eliminates external hoses, fittings and hardware. A hydraulic pump is driven from the front end of the engine crankshaft and operates in a medium pressure range. The pump is designed to give fast, accurate bucket action on any phase of shovel operation.

These and other advantages of the new Model HD-9G are discussed in literature from the Allis-Chalmers Mfg. Co. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 731.

Rapid Card File

A new electrified rotary card index file called the Kard-Veyer, permits rapid reference and posting. The operator doesn't leave this complete and compact work station.

For further information concerning the new mechanized filing system, write REMINGTON RAND INC., 315 FOURTH AVE., NEW YORK 10, N. Y., or you may use the Post Card on the colored page in this section. Circle No. 722.

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The Pioneer Self-Caulking Material for C. I. Pipe
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The pioneer self-caulking material for cast iron bell and spigot water pipe which, for more than 50 years, has shown water works men how well it makes a good tight joint that improves with age.

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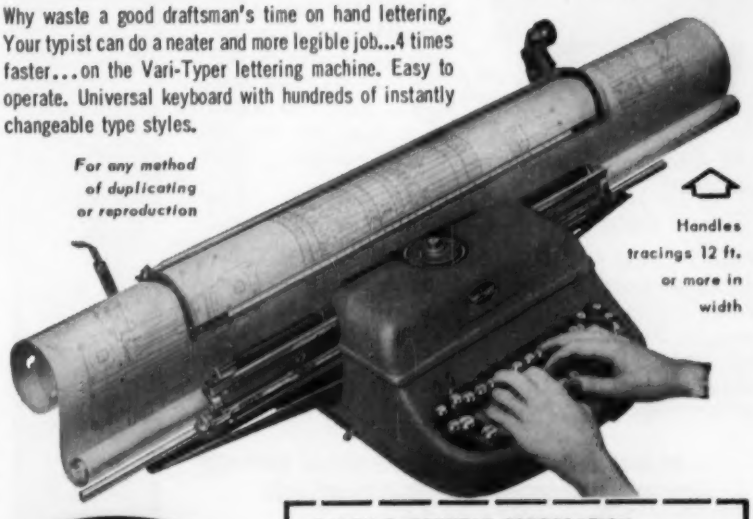

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FOR THE

Purchasing News

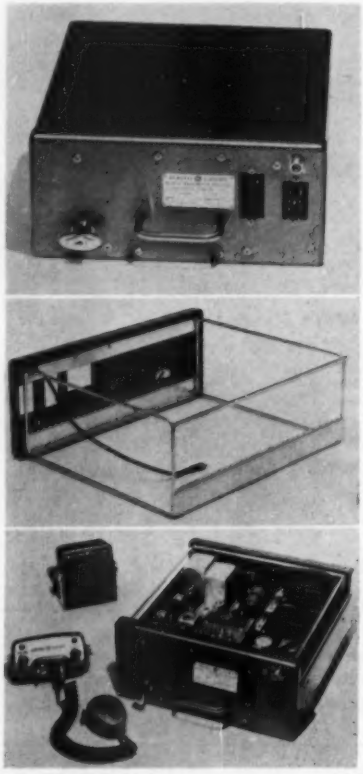
All New Two-Way Radio Equipment

A complete new line of FM mobile and base station 2-way radio communication equipment for both 25-54 megacycle and 144-174 megacycle land-mobile radio services is announced by the GENERAL ELECTRIC CO., SYRACUSE, N. Y.

Harrison Van Aken, GE general manager of communication equipment, reports: "As far as I know, this is the first time that a complete line of mobile 2-way radio communications equipment has been specifically designed, from microphone to speaker, to cover the widely divergent requirements of all the numerous land-mobile radio services. We call it the 'Progress Line.'"

All receivers, high or low band, mobile or base station, are physically interchangeable because they are plug-in units. All of the 25-54 megacycle and 144-174 megacycle transmitter chassis are plug-in units, too, for quick exchange in servicing.

Detailed information on the new "Progress Line," is available directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 712.

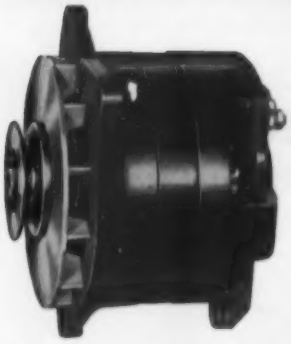


(Top) Two photos show the G-E housing for mobile radios and the relay rack inside it, which provides a new method of mounting the transmitter, receiver and power supply chassis. (Bottom) A 14-inch housing, in the trunk-mount condition, with control head and speaker.

Now EVERY city in America can afford

Leece-Neville

ALTERNATORS on all vehicles



SENSATIONAL LOW PRICE ON NEW L-N ALTERNATOR SYSTEM

The new Leece-Neville Alternator brings to light trucks, passenger cars, and other vehicles all the famous advantages that larger L-N Alternators have proved by performance for over nine years: charging current with engine idling, high output, low maintenance cost. Yet the new L-N Alternator System actually *costs less* than "extra" output d. c. generators.

L-N ALTERNATORS FOR EVERY APPLICATION

There's a right L-N Alternator for *every* vehicle. Capacities range from 60 amps for 6-volt systems to 180 amps for 12 volt systems. L-N Alternators will keep the equipment on the job and out of the repair shop.

For all the facts, write The Leece-Neville Company, Cleveland 14, Ohio. *Distributors in principal cities . . . service stations everywhere.*

ON YOUR NEW UNITS SPECIFY LEECE-NEVILLE EQUIPMENT. FACTORY-INSTALLED

YOU CAN RELY ON Leece-Neville

ALTERNATOR SYSTEMS • GENERATORS
STARTING MOTORS • REGULATORS • SWITCHES
FRACTIONAL HP MOTORS

TRUCK BUS DIESEL INDUSTRIAL PASSENGER RAILROAD MARINE OFF HIGHWAY

New Safety Light Fits Any Size Trafficone

Make your Trafficone system as efficient at night as it is in daylight by installing these new Trafficone safety lights. The special flasher lights are designed to fit any size Trafficone. Completely weatherproof, they will operate in rain and snow storms and are clearly visible, even beyond the reach of car headlights.

The flashing red or amber light will run continuously for two days, or intermittently up to one week. It operates from a standard 6-volt battery at a cost

Purchasing News

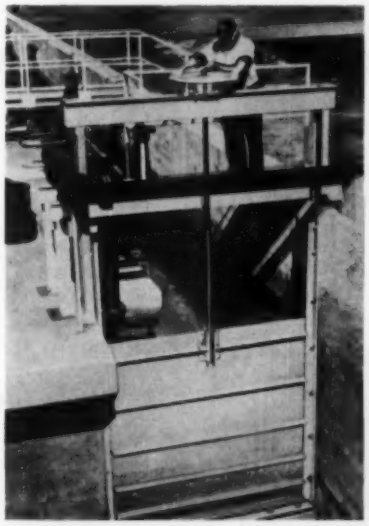
of only two cents per hour, and may be bought separately or already attached to a Trafficone.

Detailed information on the new flasher light for Trafficones is available from the DAVIS EMERGENCY EQUIPMENT CO., INC., SAFETY DIV., 64 HALLECK ST., NEWARK 4, N. J. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 714.

Aluminum Slide Gate

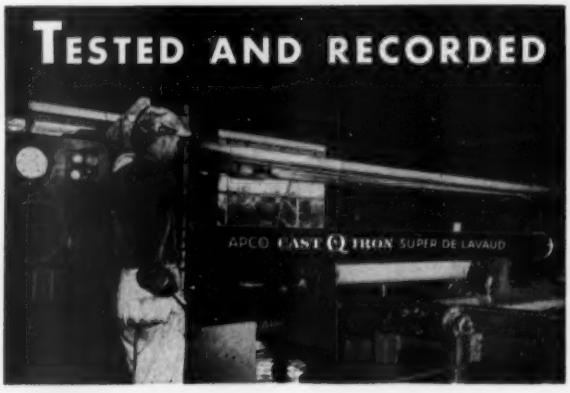
An inexpensive slide gate easily installed in water works and sewage treatment plants, is made of sheet aluminum reinforced with extruded aluminum angles. The gate is controlled by a manually operated bench-stand hoist with control stem. In normal flow, it is said to be corrosion resistant.

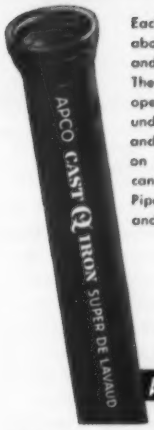
The new aluminum slide gate is recommended for use when odd channel sizes are present in design, where full channel flow is desirable, and where closure can be made under balanced conditions. It serves as an ideal stop-gate in by-pass channels, and requires only a simple frame for installation.



Gate is controlled by a manually operated bench-stand hoist with control stem.

Detailed information on the new slide gate may be obtained from the RODNEY HUNT MACHINE CO., ORANGE, MASS. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 727.





Each length of pipe we manufacture passes through the above hydrostatic test press where it is filled with water and the pressure raised to 500 pounds per square inch. The most common water works pipe is designed for an operating pressure of 150 pounds per square inch. This undergoes the 500 pounds per square inch hydrostatic test and permanent records for each piece of pipe are kept on file for inspection by our customers at all times. You can be assured with Alabama's Super De Lavaud Cast Iron Pipe. In sizes of 3" to 24" in modern long lengths. Bell and Spigot, Mechanical Joint and Flanged Pipe.

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These handy tools actually fit your watch-pocket. They require no field adjustment and little or no practice for use.

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POrt Washington 7-4843

Purchasing News

New Machine Handles Heavy-Duty Grading Jobs

This new motor grader with a capacity of 195-hp can handle your heavy-duty jobs as easily and as smoothly as it handles light grading. The Huber-Warco 5D-190 is powered by a General Motors 6-71 diesel engine, through a torque converter and full power shift transmission. This power train eliminates the need for a clutch and reduces shock loading, thus extending the life of the grader and lowering maintenance costs.

The tail-shaft governor of the Model 5D-190, automatically adjusts engine rpm to meet any local conditions, at whatever ground speed the operator wants. Ground speeds range from a creeping low of 0.85 mph to a brisk 20 mph. An Allison Torqmatic Transmission permits power shifts while the grader is under full load, eliminating reductions in speed or loss of power.

The operator of the 5D-190 can shift the blade from 90° on one side to 90° on the other in less than a minute.

The new machine weighs 32,000 pounds, features a completely cab-controlled blade movement, and runs on 16.00 x 24 tires. A high-arched front axle gives a front-end clearance of 32 inches.

For additional information, address the HUBER-WARCO CO., MARION, OHIO, or you may use the Post Card on the colored page in this section. Circle No. 703.

KOHLER ENGINES

4-CYCLE • AIR-COOLED

K90.....2.5 to 3.6 H.P.
K160.....3.6 to 6.6 H.P.
K330.....7 to 12 H.P.
K660 (2 cylinder opposed) 12 to 26 H.P.

Modern design, air-cooled Kohler Engines in sizes from 2.5 to 26 H.P. offer a power range to fit all applications requiring a reliable and economical power source.

Kohler branch offices are located in sixteen principal cities. Sales and service distributors, throughout the country, have parts available, are ready to assist you in selecting a Kohler Engine best suited for your requirements. Write for information.

High-voltage magneto insures quick, all-weather starting. Efficient cooling at all operating temperatures and speeds.

Kohler Co., Kohler, Wisconsin • Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

Prints Traffic Lines

Receiving the paint from the gravity line, a distribution apron feeds it evenly to finger rollers which make the impression.

Not only are "printed" traffic lines sharper and clearer than lines that are brushed or sprayed, they are easier to apply, too, on black top, macadam, concrete, asphalt or wood. This company has developed a sled-type, roller spreader for use with the Universal Controlled-Flo Traffic-Line Paint-Striper that prints traffic and safety lines quickly and easily. The entire machine is available in five

models ranging in paint capacity from three to 10 gallons.

Reported to outlast hundreds of brushes, the new spreader is easily maintained with a can of kerosene or ordinary paint thinner used for immersion when the unit is not in use. The paint striper is gravity fed and has no power unit. It is noiseless in operation and won't throw off any dust spray.

Detailed information is available from the LINE MARKER DIV., UNIVERSAL YONKERS CORP., 30 WOODWORTH AVE., YONKERS, N. Y. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 726.

Builds Largest Diesel on West Coast

The largest diesel engine ever to be built on the West Coast is now in production at the San Francisco plant of the Enterprise Engine & Machinery Co., according to a recent announcement. The 16-cylinder, 6,150-hp engine, reports William Clausen, executive vice-president and general manager of the firm, is the first V-type engine to be built by Enterprise. In the stationary field, it is expected to fulfill all basic requirements for municipal power applications.

The new R-V engine is the fifth in the company's series of engines now being built for a wide variety of power needs. These are designed in diesel, dual fuel and spark ignition types. Enterprise Engine & Machinery is located at 18th and Florida Sts., San Francisco 10, Calif.

Where Cards Open Gates of Parking Lots

There is a parking system, familiar to many city officials, that uses automatic gate controls by means of a patented coded card. Besides card operation, it is possible to operate the controls as follows:

1. Card and coin combination,
2. Coin operated,
3. Tokens (to facilitate free parking for customers of theaters, chain stores, department stores),
4. Card, coin and tokens combined.

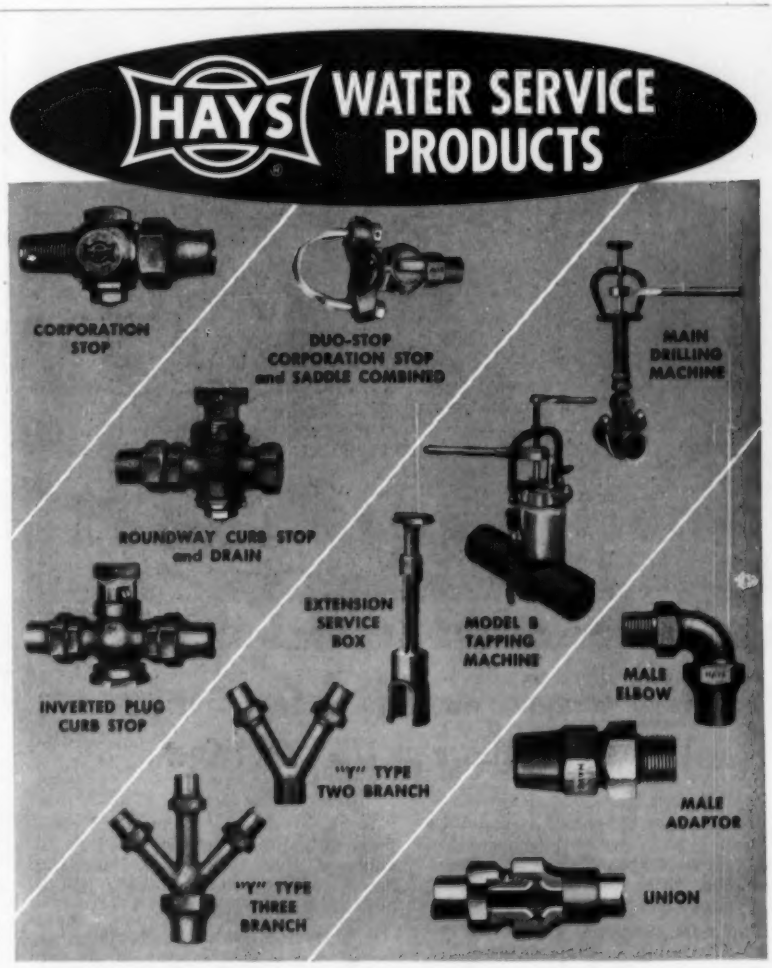
The Parcoa patented card control applies to various types of lots. It is satisfactory for lots operating on a monthly basis, as merely by issuing a differently coded card and setting a button in the control box into which the card is inserted, the previous month's card is nullified. It is practical, also, for industrial plants with private parking lots. Pass cards can be issued to authorized employees, thus keeping out all other cars.

It is suitable for hospitals, universities and other institutions where segregated lots are used by doctors, staff personnel and students. An example is a lot located at the Northwestern University Chicago campus. This lot has a capacity of 460 cars and is used about 1,000 times daily by various groups of students with differently coded cards so that only certain groups are allowed on the lot.

The Parcoa System works day and night, and there is no human element to contend with. Two gates are required for an installation, one for entrance and one for exit.

CHARLES V. GORES
Parking Corp. of America
Chicago 40, Ill.

For data on the Parcoa System, write directly to the company, or you may use the Post Card on the colored page in this section. Circle No. 734.



It Pays to Buy Hays . . . The items shown above are only a few of the HAYS complete line of water service products.

Over 80 years of manufacturing experience . . . interchangeable with those of other manufacturers . . . corporation stops can be installed with any standard tapping machine.

Send for HAYS complete catalog.

HAYS
WATER WORKS PRODUCTS
HAYS MANUFACTURING CO.
ERIE, PA.

Purchasing News

New Life for Old Traffic Signs

Renovate your city's worn-out traffic signs with ready-made traffic sign faces available from the MINNESOTA MINING AND MFG. CO., DEPT. AC-45, 900 FAUQUIER ST., ST. PAUL 6, MINN. For good nighttime visibility, the sign face may be obtained in "Scotchlite" brand reflective sheeting. For "daytime only" use, it is available in non-reflective "Scotchcal" brand plastic film.

The prepared sign faces are pre-cut to size and the legend applied by the manufacturer. On the back of each sign face is an adhesive which, when activated by heat or a liquid activator, effects a permanent bond between the sheeting and the sign.

Before renovating, the old sign face should be cleaned, the new sign face trimmed to proper size, and the liner removed from the back of the sheeting. The new sign blank is then applied with a heat-lamp vacuum applicator or by hand roller. The renovated sign face will withstand extreme weather conditions and won't crack, chip or fade.

New sign faces won't crack, chip or fade.

Additional information may be obtained by writing directly to the manufacturer, or you may use the Post Card in this section. Circle No. 724.

●TENNANT Sweeper cleans 48" path; replaces 3 to 12-man crew.

New Compact Machine Sweeps Gutters Walks and Alleys at 1/5 Usual Cost

BY SWEEPING congested areas with a new type power sweeper instead of pushbrooms, Akron, Cleveland and several other cities may save up to 80% this year in labor costs.

The new sweeper, shown at the APWA meeting in New Orleans last fall, is a compact heavy-duty machine. It cleans a 48" path and turns easily in a 5-ft. radius.

Its sweeping capacity is reported to equal that of a 3 to 12-man pushbroom crew.

Sweeps Cleaner Than a Crew

The sweeper has a powerful brush-and-vacuum system which eliminates need for water spraying or "wetting down." A rotating curb-brush sweeps leaves, dust and litter into main path of the machine.

A 36" brush, in a vacuumized compartment, throws dirt forward into an enclosed 9 cu. ft. hopper. Sweeping speed, with 2-speed transmission, is 1½ to 8 MPH.

Pays For Itself In 6 Months

The new sweeper has proved most successful in "mechanizing" whitewing work in special congested areas where big sweepers can't be used—such as gutters in downtown areas, walks, alleys, garages, driveways, etc.

In such areas a single machine is said to pay for itself in 1 to 6 months.

Air terminals, auditoriums, piers and parking lots also can be swept most economically this way.

For details, please write or wire to the G. H. TENNANT CO., 2520 N. 2nd St., Minneapolis 11, Minnesota.

A Better Swimming Pool Filter

Micro Metallic's porous stainless steel self-supporting filter element.

The efficient operation of public swimming pools depends, in large part, on the type of water filters used. To assure the most economical operation possible, the Micro Metallic Corp. has developed a "permanent" diatomaceous earth porous stainless steel filter, successfully tested in swimming pools for six years of continuous operation.

Used in pool water re-circulating systems, the Micro filter removes even microscopic particles and is easily cleaned by backwashing. The heart of the unit is a cylindrical tube made of tough, por-

Purchasing News

ous stainless steel. Unlike other metal-and-stone filters, this porous stainless steel withstands the roughest handling and, because it occupies less space, may be enclosed in a smaller container. To make the filter element stronger and easier to install, the porous metal tube and its mounting fittings are welded into a single unit.

A new brochure containing a detailed description of the new porous stainless steel swimming pool filter is available from the MICRO METALLIC CORP., GLEN COVE, N. Y. For your copy, write the manufacturer directly, or you may use the Post Card on the colored page in this section. Circle No. 701.

Refills for Street Sweeper and Gutter Brooms

Two reliable sources of supply for quality fibres and flat steel wire used in refilling street sweeper and gutter brooms are the FLOUR CITY BRUSH CO., 1501 FOURTH AVE. SOUTH, MINNEAPOLIS 4, MINN., and the PACIFIC COAST BRUSH CO., 1507 SANTA FE AVE., LOS ANGELES 21, CALIF. Both companies are direct importers and suppliers of Palmyra stalks, African bass, split hickory and flat steel wire. They maintain three warehouses, strategically located in New York, Minneapolis and Los Angeles, to provide your municipality with immediate service.

Detailed information on this expert broom refilling service is available from either company. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 713.

One Unit Mows, Cuts and Shreds

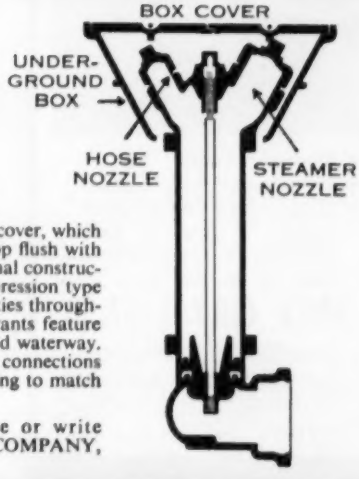
Quickly attached to any Ford tractor, the new Rocklin Shred-Mowbile cuts weeds, tall grass, brush and fence rows; mows lawns; and cuts, shreds and pulverizes corn stalks, cotton and other residues. By simply reversing the 52-inch blades, the unit is converted from a shredder into an efficient mower and weed cutter. Four, fast-whirling blades cut a 52-inch swath or two rows of corn simultaneously.

The Shred-Mowbile will cut, shred or mow in any direction—in all types of weather. One edge of each cutting blade is sharpened for mowing, while the other edge is dull for shredding. Safe cutting is provided by heavy steel which completely covers the blades.

A regular Ford tractor power take-off gear box is incorporated in the Shred-Mowbile as part of its power unit. The combination shredder and mower is easily raised up to eight inches off the ground, and may be transported without detaching from the tractor.

Additional data are available from the ROCKLIN MFG. CO., GRAND AVE. at JENNINGS ST., SIOUX CITY 7, IA. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 721.

This M & H Hydrant sets completely underground. The cast iron box cover is on line with the ground level, thus completely eliminating any interference with traffic. M & H flush type hydrants are especially designed for use at airports servicing the heaviest modern airplanes.



The operating nut and nozzles are accessible simply by lifting the two piece cover, which has disappearing handles designed to drop flush with the cover when not in use. Hydrant internal construction is exactly the same as M & H compression type fire hydrants used by so many municipalities throughout the country. M & H flush type hydrants feature a 5¼" valve opening and an unobstructed waterway. Can be supplied with one or two fire hose connections and/or with steamer nozzle, with threading to match existing standards.

For additional information, wire or write M & H VALVE AND FITTINGS COMPANY, ANNISTON, ALABAMA.

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

FISHER
M-SCOPE
"ELECTRONIC WITCH"
PIPE-CABLE-FINDER
—LEAK-DETECTOR—

USED AS A PIPE FINDER

USED AS A LEAK DETECTOR

- Fiberglas Cases
- 50% Lower Batt. Cons.
- Unsurpassed Performance
- Built-in "A" and "B" Battery Checker in Transmitter and Receiver $12.50 Extra.

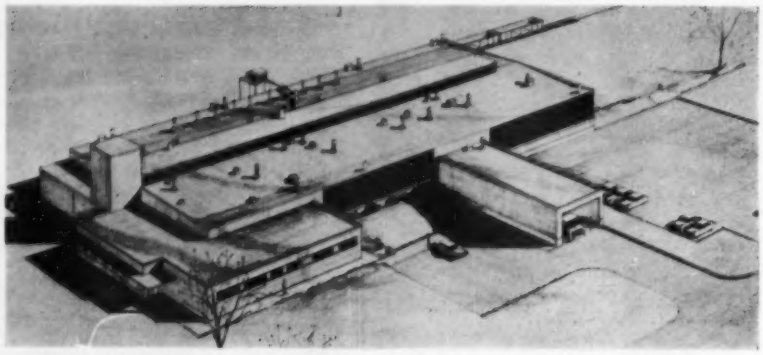
PRICE ONLY $162.50

- IMMEDIATE SHIPMENT
- WRITE TODAY FOR THE COMPLETE "ELECTRONIC WITCH" STORY.

FISHER RESEARCH LABORATORY, INC.
PALO ALTO / CALIF.

Purchasing News

Opens New Foundry



New $600,000 Fall River Foundry is a subsidiary of the Badger Meter Mfg. Co.

The opening of a new $600,000 foundry at Fall River, Wis., is announced by the Badger Meter Mfg. Co., Milwaukee 45, Wis. The Fall River plant will operate as a subsidiary of the Badger Meter firm. It is expected to produce about 400,000 pounds of brass castings for liquid meters monthly.

According to William C. Wright, vice-president in charge of production at Fall River, the new plant will employ about 80 persons. The foundry, 150 x 200 feet, is housed in a one-story building of brick, cement block and structural steel construction.

Ryerson Acquires Harvey Steel Company

Joseph T. Ryerson & Son, Inc., a subsidiary of the Inland Steel Co., Chicago,

Position Wanted

Supt. of Public Works, Supt. Water and/or Sewage Depts. Graduate Engineer, 20 years' experience in municipal and public utility operation, maintenance, planning and construction.

Married, wishes permanent location. Available immediately.

Write: P. O. Box 261
Trenton, N. J.

PUSH PIPE
under streets, walks, tracks, floors . . .

. . . with a
GREENLEE PIPE PUSHER

Speed jobs with this quick, simple way to install underground pipe. With the GREENLEE *one man* pushes pipe under obstacles . . . no tearing up of pavement, floors, lawn . . . eliminates extensive ditching and tedious backfilling! Two models and special power pump to fit your various jobs. Write for facts today.

GREENLEE

Greenlee Tool Co., 2024 Columbia Ave., Rockford, Ill.

Purchasing News

Ill., recently acquired the plant and stocks of the Arthur C. Harvey Co., steel and aluminum distributors, according to an announcement by Charles L. Hardy, Ryerson president. The company plans

Charles L. Hardy, president of Joseph T. Ryerson & Son, Inc., Chicago 80, Ill.

to consolidate its Greater Boston operations at the Harvey plant, Everett St. and Harvey Steel Rd., Allston District, Boston, Mass.

With the acquisition of the Harvey property, Ryerson operations at Third and Binney Sts., Cambridge, Mass., will be discontinued. Park Sanderson, manager of the Ryerson Boston plant, will continue as manager at the new location. Robert T. Harvey, son of Murray C. Harvey, vice-president of Harvey Steel, will manage the newly-created Ryerson aluminum department.

F-M's New Orleans Branch Wins Sales Competition

The New Orleans Branch of Fairbanks, Morse & Co. received a silver trophy recently for top sales performance in 1954. The Colonel Robert H. Morse Cup, as the trophy is called, is part of a national sales contest conducted annually by the company. It was presented by Colonel Morse, chairman of the board, to P. S. Procter, manager of F-M's New Orleans Branch at a special dinner given at the Roosevelt Hotel, New Orleans.

Included in the Fairbanks-Morse line are diesel engines, locomotives, scales, pumps and electric machinery. Main offices of the company are located at 600 S. Michigan Ave., Chicago 5, Ill.

FROM THE WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS

Let 1 instrument do all your work...

THE *Dualtronic* MODEL LC-5

Here is the instrument for which Municipalities have been looking . . . ONE instrument that locates Pipes, Leaks and Valves, yet costs no more. Model LC-5 not only saves you money but does the job accurately and dependably. Ruggedly constructed. Compact. Lightweight. Simple, one man operation. Model LC-5 is fully guaranteed.

plus these BIG features:

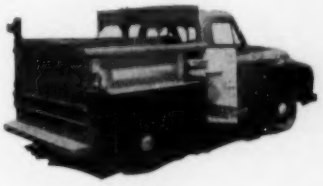
1. Use as Pipe Locator, Leak Detector, Valve Locator.
2. Pin-Point Detection.
3. Automatic on-off and power switching.
4. Crystal microphone.

The GOLDAK Company
Leading Electronic Manufacturers
1933
1544 W. Glenoaks Blvd.
Glendale 1, Calif.

WRITE FOR COMPLETE BROCHURE

Pierce
QUALITY BRAND
UTILITY BODIES

"SM" SERIES—74"-104" long by 74"-88" wide. Completely equipped with tool and parts storage space for efficient operation.



"CMS" SERIES—74"-104" long by 74"x88" wide. Transverse compartment through front of body carries meters, parts and tools. Rolling drawers with removable dividers.

"TT" SERIES—Transformer Trailer—one design of many for installing or restoring service. Simplifies change-outs with fast service, anywhere.

Also complete line of Line Construction, Gas, Ladder, Aerial Tower Bodies, Trailers and Pick-up Side Boxes.

Write for Complete Information

Company .....
Name .....
Address .....
City ..... State .....
I am interested in
Service Bodies ☐ Trailers ☐
Pick-up Boxes ☐ Line Bodies ☐
for ½ ton ☐ ¾ ton ☐ 1 ton ☐ 1½ ton Chassis ☐

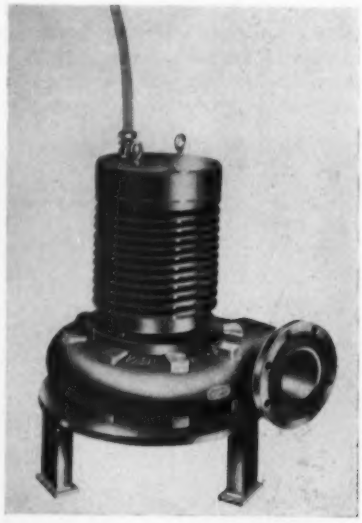
AUTO BODY WORKS, Inc.
APPLETON, WISCONSIN

Purchasing News

Submersible Sewage and Drainage Pump

This submersible sewage and trash pump will handle solids up to 3½ inches in diameter and is especially useful in pumping large amounts of water caused by storm-water and highway underpass drainage. The pump may be installed in pits under the roadway or along the right of way. No pump house is required. Weather-proof electrical controls can be mounted on a post or pole, either adjacent to or at a distance from the pit.

The new, heavy-duty, screenless type pump is equipped with a non-clog impeller, and will operate continuously during flood periods. The water-cooled motor is mounted directly on top of the pump casing. Operating parts of the pump will not corrode or deteriorate—even when idle—regardless of weather conditions. The unit is self-contained



with sealed bearing, and the special lubricant used requires change once every five years.

The Weil submersible drainage pump is available in 4-inch discharge with capacities to 400 gpm; 5-inch discharge with capacities to 1,250 gpm; and 6-inch discharge with capacities to 2,000 gpm.

Write the WEIL PUMP CO., FREMONT AND WEED STS., CHICAGO 22, ILL., for further details, or you may use the Post Card on the colored page in this section. Circle No. 719.

CAST IRON WATER MAINS

Were Practically Unharmed

Never has the great shock resistance and beam strength of cast iron water mains been demonstrated so dramtically as in this epochal explosion. While it is to be hoped devoutly that no bomb will ever fall on this land of ours, water systems in many cities have at times been threatened by the severe tests of earthquakes, floods, tornadoes, and other strains and stresses. Since water is vital to the life of your community at all times and under all conditions, it pays to specify the pipe that has been proved through centuries of service — permanent Cast Iron.

* * * * *

Woodward Iron Company does not manufacture Cast Iron Pipe but has long served many of the nation's leading foundries with quality pig iron from which permanent Cast Iron Pipe is made.

WOODWARD IRON COMPANY

WOODWARD, ALABAMA

Small Plant Produces More Asphalt Mix

Instead of its usual rating of 8 to 10 tph, the small White Model L-8 asphalt plant features an increased capacity of 10 to 15 tph. The 10-tph rating is based on discharged mix at about 300°F., while the 15-tph rating contemplates lower temperature mixes such as cut-back, used for deferred laying. The unit is ideal for street maintenance and for paving driveways, alleys and municipal parking lots.

The pug-mixer batch has been increased to 850 pounds. A reciprocating plate feeder with two compartments and

Purchasing News

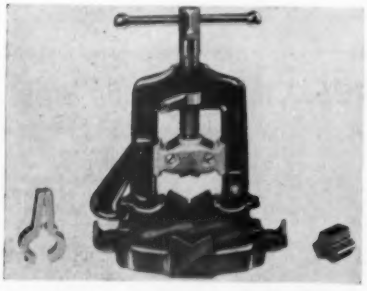
two adjustable gates enables graded aggregate to be fed to the dryer. The feeder is driven from the bottom of a cold elevator, which has been equipped with larger, malleable buckets to coordinate with dryer and mixer capacities.

One man operates the Model L-8, and an assistant handles aggregate delivery. The unit is mounted on a self-contained steel frame. Six pneumatic tires are included on the portable model, with brakes on four rear wheels. The stationary model is mounted on piers or cribs, and may be used for discharging directly into trucks.

Full facts on the Model L-8 may be obtained from the WHITE MFG. CO., ELKHART 1, IND. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 705.

New Pipe Vise Adjusts Automatically

Erie Tool Works has designed its new Pipemaster vise to adjust automatically on pipe from ⅛ to 2½ inches in diameter, and clamp on it with less than one turn of the screw. The new vise



features a long, 3-way, tool-steel top jaw with milled teeth. Also long, tool-steel, reversible bottom jaws.

Vertical benders on both sides of the vise base enable you to attach the vise to any corner of your bench and to see the bend. A spring located under the self-locking hook keeps the top jaw housing tight and level.

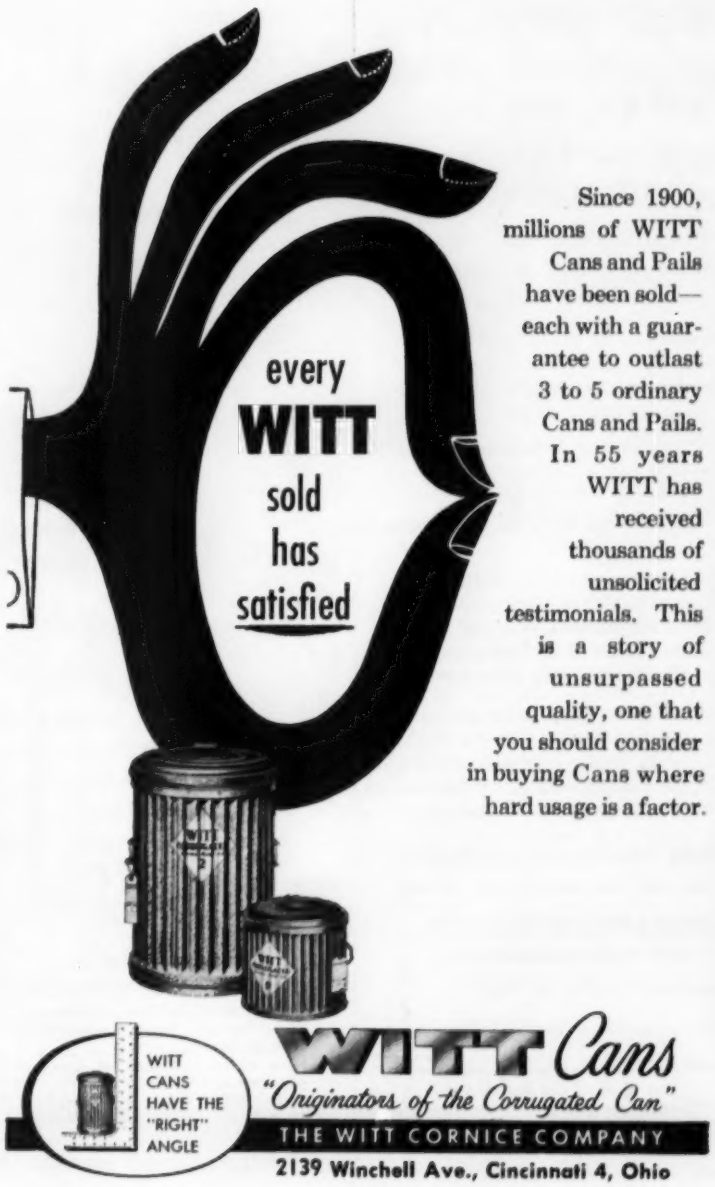
Additional details on the Pipemaster vise may be obtained from PIPEMASTER, ERIE TOOL WORKS, ERIE, PA. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 730.

I-H Opens Second Jacksonville Office

The International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., has opened a second district sales office in Jacksonville, Fla., according to a joint announcement by B. M. Kaiser and F. W. Clark, the company's motor truck and general sales southern regional managers. Both offices are located in the Harvester Bldg., 1986 W. Beaver St.

In the past, the company's Jacksonville office operated as a "combination" office, handling the wholesale distribution of I-H motor truck, farm tractor, farm equipment and refrigeration products throughout the area. This "combination" office has been replaced with a separate motor truck district sales office and a separate general sales district office.

J. P. O'Donnell, former manager of the "combination" office, will be in charge of the general sales district office. He will be assisted by A. T. Ellis. The new motor truck district office will be managed by W. K. Perkins, formerly an assistant to the company's vice-president. R. G. Walls will assist Mr. Perkins.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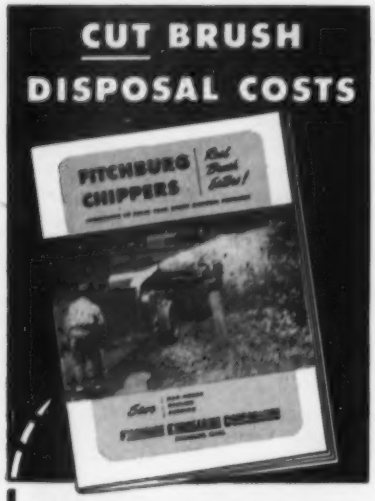
WITT
sold
has
satisfied
Since 1900, millions of WITT Cans and Pails have been sold—each with a guarantee to outlast 3 to 5 ordinary Cans and Pails. In 55 years WITT has received thousands of unsolicited testimonials. This is a story of unsurpassed quality, one that you should consider in buying Cans where hard usage is a factor.
WITT CANS HAVE THE "RIGHT" ANGLE
WITT Cans
"Originators of the Corrugated Can"
THE WITT CORNICE COMPANY
2139 Winchell Ave., Cincinnati 4, Ohio



FREE BOOKLET

tells how you save

- **MAN HOURS**
- **HAULING**
- **BURNING**

with an economical

FITCHBURG CHIPPER

Whatever your brush disposal problem, the new Fitchburg Chipper booklet probably has the answer for your operation.

You will read how other leading tree surgeons, power companies, utilities, and municipalities have cut disposal costs up to 50% with reliable Fitchburg "Brush Eaters."

You will see pictures of different Chipper models in action and read helpful suggestions, tips, and specifications. You will see how the exclusive Fitchburg Safety Spring works.

Tear off the coupon below and mail for your fact-packed Chipper Booklet today. Learn how a Fitchburg Chipper can cut your brush disposal costs—save you time, effort, money.

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Dept. AC-45, Fitchburg, Massachusetts

Please send free Chipper Booklet.

*Name*_____

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*City*_____ *State*_____

Purchasing News

Improved Subway Illumination

At the subway station beneath Grand Central Terminal, New York City, 350 six-foot fluorescent fixtures with Plexiglas diffusers were installed in continuous rows along the edges of the subway platform. The Plexiglas is made by the ROHM & HAAS CO., WASHINGTON SQUARE, PHILADELPHIA 5, PA. The illumination is said to be about 13 times greater than that provided by the former one-thousand 36-watt incandescent bulbs.

The increase in light from 0.6 to 8.0 foot-candles is important not only because it is pleasanter for passengers, but because it is safer, reducing the number of accidents and crimes.

New Home for Michaels Art Bronze

The new home of The Michaels Art Bronze Co., Inc. is located in Erlanger, Ky., on the Dixie Highway, eight miles southwest of Cincinnati, Ohio. There are two buildings with a total floor area of 97,300 square feet. One unit houses

EXTRA REVENUE...the Attractive Way

● Allan Herschell Merry-Go-Rounds and other amusement rides, installed in parks, zoos and playgrounds, bring in big revenues and give children and adults a lot of fun. There is no objection to kiddie rides. They are clean, cause no litter, and add a bright, gay appearance to any outdoor operation. Kiddie rides available include Sky Fighter, Roller Coaster, Jolly Caterpillar, Tank, Boat, Auto and Buggy Rides. Gasoline Sports Cars provide actual driving experience to pre-teenagers. Built to Allan Herschell's high standards. Easy to operate, minimum maintenance. Write for illustrated catalog.

ALLAN HERSCHELL CO., INC.
NORTH TONAWANDA, N. Y.

"World's Largest Manufacturer of Amusement Rides"

got enough EARS?

BE ON THE CONSTANT ALERT

All Departments Can Now Listen to Every Vital Message

MONITORADIO for a thoroughly coordinated 2-way communication system.

Now every member of every department can have radio communication for as little as $49.95

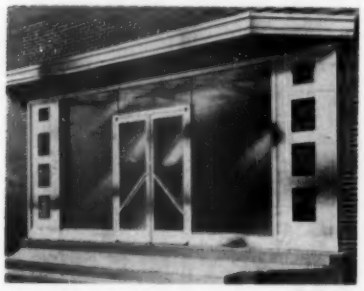
Write today for further information.

- Nation's most complete line of monitor receivers.
- Crystal controlled or tunable for any VHF FM communication system.
- Mobile or stationary receivers.
- Prices to meet any budget.
- Certified for civil defense use.

MONITORADIO RADIO APPARATUS CORPORATION

the foundry, the other contains the manufacturing, assembly, offices and engineering departments.

The facilities available in these modern and highly functional buildings enable Michaels to expand its activities, increase

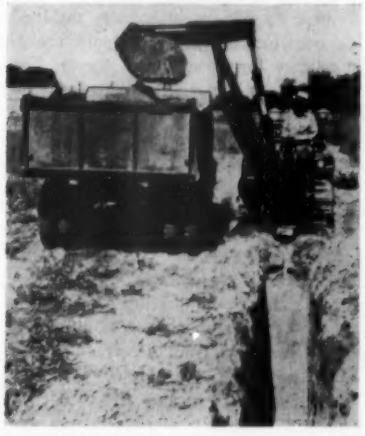


Attractive entrance to the new Michaels Building located in Erlanger, Ky.

production, and streamline the manufacturing processes of many ferrous and nonferrous metal products. These include building components, metal letters, display cases, bronze tablets and markers, donor plaques, inurnment urns, cemetery vases and parking meters.

The Michaels Art Bronze Co., Inc. was formerly located in Covington, Ky.

Improved Backhoe Digs Deeper Trenches



Improved backhoe, Model C-10, will dig a trench 10 feet-6 inches deep.

Designed with 20% more power, the improved Henry hydraulic backhoe, Model C-10, features deeper digging, higher loading, and a boom that stretches; three important advantages that will simplify any municipal operation. The automatic telescoping boom is hydraulically operated, extending and retracting as the operation requires. It digs 10 feet-6 inches deep, loads 8 feet high, and has a digging and lifting cycle of 18 feet-6 inches.

A new, parallel circuit control valve, with free oil flow, permits digging and dumping in one, continuous action, while a new regulator valve adjusts down pressure to suit digging conditions. The self-anchoring, hydraulically controlled mainframe rests on 6½ square feet of ground, stabilizing the entire unit and permitting 16 linear feet of earth penetration.

The improved backhoe digs from one position at any angle inside its 160° swing radius. It is well adapted to digging close to buildings and other hard-to-reach places, and is easily attached to almost any standard make wheel or track-type tractor in minutes.

The Henry Mfg. Co., Inc., 1713 N. Clay St., Topeka, Kans., will furnish full information. Write directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 728.

SEAL the SURFACE to PROTECT the BASE

STANDARD STEEL PRESSURE DISTRIBUTOR GIVES UNIFORM CURB-TO-CURB SURFACING

Uniform Pressure and Temperature Along the Entire Spray Bar Assures Accurate Application and Proper Penetration of Material.

Proper surfacing is the solution to withstanding winter freezes. Water that penetrates to sub-base causes heavy damage year after year to roads not correctly and uniformly surfaced from curb to curb. With the Standard Steel Model 424 Distributor there's rarely a bad spot in a mile of coating. Faster operation — no delays due to tinkering, dismantling and cleaning spray bar, or warm-up time. For primary construction, this equipment far excels all competitive makes. Let us give you the facts on "Competitive Tests".

WRITE FOR CATALOG 424

OTHER PRODUCTS

Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard

Standard Steel Works NORTH KANSAS CITY, MO. PD-2

IT HAS JUSTIFIED ITS CAPITAL INVESTMENT MANY TIMES OVER

This town of 6,000 people could not afford

A TRACTOR
AIR COMPRESSOR
BACKHOE
LOADER

So they brought in a PNEUMATRACTOR for a trial and refused to return it because

It loads sand in winter
Excavates for sewer and water main repairs
Breaks up frozen ground
Drills ledge rock, and
does dozens of other jobs

YOUR TOWN NEEDS ONE, TOO.

Write for Catalog 5540

SCHRAMM, INC.
WEST CHESTER PENNSYLVANIA

No. 3X

Frame length 37¼"
Frame width 15"
Capacity ¾" to 2" Pipe

Push Pipe

A ONE MAN MACHINE

Summer & Winter

Push Pipe

WRITE FOR NEW CATALOG SHOWING COMPLETE LINE OF PIPE PUSHERS AND PRICES.

50TH
1905—ANNIVERSARY—1955

GIANT MANUFACTURING CO., COUNCIL BLUFFS, IOWA

Purchasing

Fiberglass Traffic Signs Wear Longer

Used in over 200 cities throughout the country, these sturdy traffic signs are constructed of fiberglass, a long-wearing material which is immune to changing weather conditions. The economical Dura-Sign weighs only 1/3 to 2/3 as much as metal signs, won't rust or pit, and is unaffected by salt air, acids and fumes. The background colors, white, red and yellow, go through the sign and cannot wear or chip off.

Printed by silk-screen process, the legends on your Dura-Sign remain sharp and clear, without repainting, for the life of the sign. Moreover, the signs are constructed to withstand severe bumps and blows. In the above illustration, a steel hammer, wielded by 223 pounds of bone and brawn, is unable to make a dent in the Dura-Sign.

Dura-Signs are available in a variety of standard legends and in three standard sizes. Blanks are offered for cities choosing to do their own lettering.

Literature describing the Dura-Sign may be obtained from PERRY PLASTICS, ERIE, PA. Write directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 732.

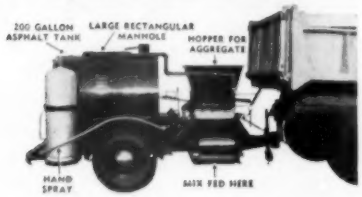
Picks Up Curb Sections

The Question: What is an easy way to pick up a 500-pound section of rock curbing?

The Answer: Use a pair of tongs.

This answer is valid only if you have the right pair of tongs attached to the right sort of equipment. The tongs in

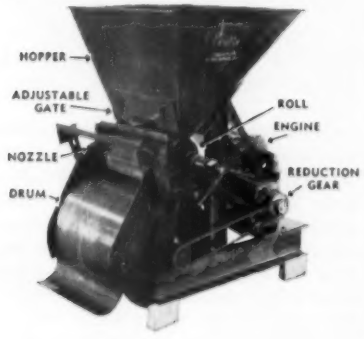
EASY, LOW-COST Blacktop Maintenance With CARTWRIGHT "PAVETTE"



Correctly and automatically proportions mix, right on the job as needed, in any small quantity desired from a half-shovelful to a wheelbarrow load. Reduces maintenance cost of blacktop because "PAVETTE" saves time, avoids waste of materials, and can be operated by only two men. Has 200 to 600-gallon tank, and hand spray for applying tack-coat to repair spot.

"PAVETTE" hitches behind maintenance truck and moves along street as repair work progresses.

Eliminates disadvantages of road-mix methods, cold-mix patching, and hauling plant-mixed material to the job.



for YOUR OWN tank unit

"PAVETTE" is furnished as a complete unit with tank and mixer mounted on chassis with two wheels as shown at top of this advertisement, or as a separate mixing unit (shown above) for mounting on your own maintenance truck or trailer.

For detailed information and prices, write to:

CARTWRIGHT INDUSTRIES, INC.

P. O. Box 3251, S. Highlands Sta.
Birmingham, Alabama

this case were specially made by the Heppenstall Co. They weigh only 30 pounds and have the ability to pick up the curbing easily. The tongs are secured to the bucket of a Hough Payloader that does the actual lifting.

The tongs carry the identifying name of Automatic Safe-T-Tongs. They are fully described in literature from the

Rock curb sections come out quickly, easily and safely with this new type tong.

HEPPENSTALL CO., PITTSBURGH 1, PA. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 708.

POWER

EMERGENCY
PORTABLE
CONTINUOUS

Katolight GENERATORS and POWER PLANTS

Whether the need is for portable, standby or continuous power, Katolight furnishes it more efficiently at lower cost. Many models, your choice of air or water cooled gasoline engines of well known manufacturers. Up to 50 K.W. Also Motor Generator Sets, High Frequency Changers and Independent Generators up to 400 K.W.

Whatever your future municipal department power plans require, remember Katolight offers advanced, money saving features.

Write regarding your requirements.

Katolight CORPORATION

Box 891-25 **Mankato, Minnesota**

Unsurpassed
IN STRENGTH, DESIGN AND DURABILITY

☆ You will begin to understand what superior materials, fine craftsmanship and smart modern designing can mean to your pool when you install your first American *Streamlined* Regulation One Meter Diving Unit. You'll know right away that American Approved Equipment is the kind you want for your pool . . . and you'll discover that the ten-years-ahead styling is just one of many exclusive *plus features* you get with AMERICAN. Beautifully Streamlined Design . . . Outstanding Performance . . . Lifetime Durability . . . there's all that *and more* in AMERICAN APPROVED SWIMMING POOL EQUIPMENT.

American Approved DB-1 Extra Heavy Duty Official Regulation One Meter Diving Unit

American Approved Steel Pool Ladder

American Heavy Duty Life Guard Chair

☆ write for literature featuring american approved jim patterson
LIFETIME Aluminum DIVING BOARD
world's finest official board

AMERICAN
PLAYGROUND DEVICE CO.
ANDERSON, INDIANA, U. S. A.
WORLD'S LARGEST MANUFACTURERS OF FINE PARK, PICNIC, PLAYGROUND, SWIMMING POOL AND DRESSING ROOM EQUIPMENT

BRANCH PLANT AT NAHMA, MICHIGAN

Loader, Bulldozer, and Street Broom

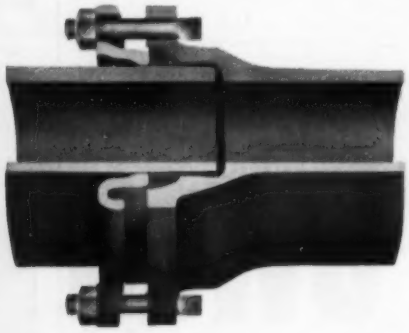
A hydraulically-driven street broom, bulldozer and angle dozer blade, and a 66-inch wide snow bucket are available for use on the Shawnee Special Loader.

The new broom is adapted to the frame through the use of three pins, facilitating quick mounting or dismounting. It can be angled up to 30° to either side manually. Moreover, the 7-foot wide, 24-inch diameter India palm broom is driven by a hydraulic motor and provisions are made for speed variations from 150 to 350 revolutions per minute. The special method of mounting provides the tractor operator with improved vision.

Additional information on the Shawnee Special Loader, with attachments, may be obtained from the SHAWNEE MFG. CO., 1947 N. TOPEKA, TOPEKA, KANS. Write directly to the manufacturer, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 706.

McWANE-PACIFIC BOLTITE IS A

FLEXIBLE JOINT



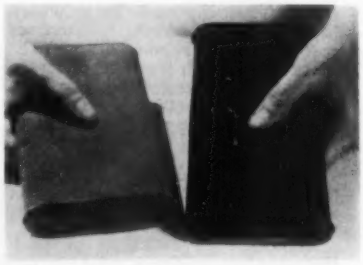
Sound engineering principles call for flexibility in a pipe joint to allow for settlement, expansion and contraction. Boltite mechanical joint Super-DeLavaud centrifugal pipe meets these specifications.

Its efficiency as a bottle-tight joint under all conditions is proven by thousands of miles of Boltite pipe which has been in service for many years in all parts of the country. Being cast iron, the ability of Boltite pipe to last for centuries of service is now taken for granted by the engineering profession. Write or telephone McWANE CAST IRON PIPE COMPANY, Birmingham, Alabama (4″—12″) or PACIFIC STATES CAST IRON PIPE COMPANY, Provo, Utah (4″—24″).

McWANE PACIFIC PIPE *Lasts for Centuries*

No Mildewed Hose

More municipalities are specifying that their hose be treated for mildew resistance and water repellency. The slight added expense is a good long range investment. In addition to better wear, the hose is easier to handle and dries quicker.



Hose treated with the new compound (left), is contrasted with hose to which the previous treatment has been applied.

THE BOSTON WOVEN HOSE & RUBBER CO., BOSTON 3, MASS., offers a treatment which improves the flexibility of treated hose, and comes in a tan color. For complete information, address the manufacturer directly, or you may use the Post Card on the colored page in this section. Circle No. 704.

New Diesels Approved For Firefighting

Underwriters' Laboratories, Inc., recently approved two Caterpillar diesel engines, the D337 and D326, for fire protection applications such as supplying power for fire pumps. Other Cat diesels which have been approved include the D397, D386, D375, D364, D13000 and D318.

Full details on Cat diesel engines and how they reduce fire insurance rates, are available from the CATERPILLAR TRACTOR CO., PEORIA, ILL. Write directly, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 716.

New Loader Attachment Cuts Costs

A Holmes-Owen front-end loader has stepped-up Texas Christian University's campus beautification program and saved the school money besides, according to M. A. Doss, superintendent of the Fort Worth School's campus and grounds. The new attachment fits on a dump truck and makes a one-man operation out of loading, hauling, dumping and spreading dirt. It has done nearly twice the amount of work estimated by Mr. Doss during 4½ months of full-time operation.

Over a 10-year period, reports Mr. Doss, the machine should save the university at least $32,000 in dirt charges and hauling expenses for the front campus alone, allowing for full depreciation of both truck and loader. Here is how he arrives at that figure:

Minimum requirements for leveling, fertilizing and beautifying the campus call for 4,800 yards of dirt per year, an average of 20 yards per day, 20 days each month. Privately contracted, this dirt would cost at least $1.50 per yard, loaded, hauled and dumped. Campus workers handle the actual spreading. A 10-year supply of dirt, therefore, would come to $72,000.

With the Holmes-Owen front-end loader, T.C.U. has been averaging 35 yards a day, 24 days a month. Assuming the university hauled the same 4,800 yards a year, the annual cost would be $3,500—that's the driver's salary and gas and oil expenses—or $35,000 over 10 years. Add $5,000 for full depreciation of both truck and loader, and the figure arrived at is $32,000 less than the original $72,000.

If the truck-and-loader keeps up the pace it has set so far, explains Mr. Doss, it will outstrip the estimate of work expected of it. Daily averages of 35 yards loaded, hauled and spread, 24 days each month, comes to 840 yards per month. Leaving out two months for bad weather in the winter, this totals 8,400 yards yer year.

During the past four years, before T.C.U. acquired its front-end loader, less than 4,000 yards of dirt and fertilizer had been spread on all of the university's 168 acres of campus and grounds. This was largely due to labor expenses, since it required three men and a driver to haul 24 yards in one day. Wages were apt to run costs up to 75 cents yer yard. Now, reports Mr. Doss, it's about 15 cents per yard.

Where dirt is packed hard and the Holmes-Owen loader has to dig as well as scoop, it takes about 10 minutes to load five yards, or one truckful. The same amount of loose dirt takes five minutes, and dry, flaky fertilizer, about 3½ minutes.

T.C.U.'s new front-end loader was purchased from the Hobbs Manufacturing Co., distributors for the Ernest Holmes Co., in the Texas area. For complete information on the versatile, money-saving machine, address the ERNEST HOLMES CO., CHATTANOOGA, TENN., or you may use the Post Card on the colored page in this section. Circle No. 733.

Triangle Brand
Copper Sulphate
HELPS SOLVE YOUR WATER PROBLEMS
Triangle Brand Copper Sulphate economically controls microscopic organisms in water supply systems. These organisms can be eliminated by treatment of copper sulphate to the surface. Triangle Brand Copper Sulphate is made in large and small crystals for the water treatment field.
Roots and fungus growths in sewage systems are controlled with copper sulphate when added to sewage water without affecting surface trees.
Booklets covering the subject of control of microscopic organisms and root and fungus control will be sent upon request.
PHELPS DODGE REFINING CORPORATION
40 Wall Street, New York 5, N. Y.
5310 W. 66th Street, Chicago 38, Ill.
Send for these booklets

KEEP in STEP!

. . . Take Advantage of

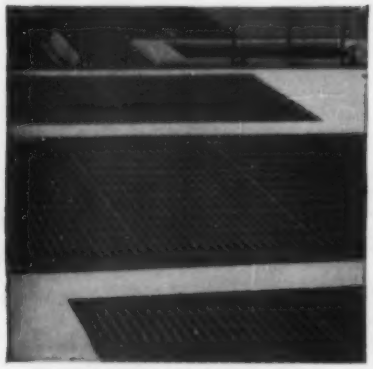
SAFETY, ECONOMY, DURABILITY,

Every Step of the Way.

. . . CHOOSE

IRVING GRATINGS

You're on SURE FOOTING with Versatile IRVING RIVETED, WELDED OR PRESSURE-LOCKED OPEN MESH FLOORING . . .



FOR: Walkways, Catwalks, Flooring, Draingrates, Stairways, Stair Treads.

IN: Sewage Disposal Plants, Water Treatment Works, Power Stations, Bus Laundries, and other Public Works Installations.

Specify IRVING GRATING for:

★ Light Weight
★ Simple Installation
★ Self-Draining Features
★ Self-Ventilating Qualities
★ Minimum Maintenance Cost
★ Custom-Built Perfection
★ Prompt Delivery
★ Safety ★ Durability

"A Fitting Grating for Every Purpose"

Ask for Illustrated Catalog

IRVING SUBWAY GRATING CO., INC.
ESTABLISHED 1902

OFFICES and PLANTS at

5056 27th St., Long Island City 1, N. Y.
1856 10th St., Oakland 20, California

About People

Twelve directors of **B-I-F Industries, Inc.**, Providence, R. I., were re-elected recently at the company's annual stockholders meeting. These include H. S. Chafee, Z. Chafee, Jr., D. K. Bartlett, C. D. Mercer, Earl H. Bradley, L. E. Harper, G. W. Kelsey, I. O. Miner, John S. Chafee, H. D. S. Chafee, R. P. Lowe, and Louis H. Harvison. Immediately following their re-election, the directors elected five new assistant vice-presidents including W. W. Adams, director of sales development; C. I. Bearse, purchasing agent; N. A. Larsen, shop superintendent; R. W. Pearce, works manager; and W. A. Wiggins, director of production control. B-I-F Industries recently held its annual Service Awards Dinner honoring Lyndus E. Harper and John R. Hartley for 25 years of consecutive service with the company. Mr. Harper is president of the Omega Machine Co., and Mr. Hartley is vice-president and manager of project sales for Builders-Providence, Inc. Both firms are B-I-F subsidiaries.

When Irwin Abrams takes over as general manager of **Aeroil Products Co., Inc.**, South Hackensack, N. J., he will not only retain his duties as treasurer and assistant secretary, but will coordinate the firm's overall manufacturing and sales operations as well. Aeroil manufactures portable flame-fired equipment and specialized burner-sprayers.

Walter B. Meador will head the new Southeastern office of **Jack Ammann Photogrammetric Engineers, Inc.**, San Antonio, Texas, specialists in low-cost aerial surveys and city planning maps. Mr. Meador will locate at 685 W. Peachtree St., N. E., Atlanta 5, Ga.

W. B. Meador

The expanding Nordstrom Valve Sales Division of the **Rockwell Mfg. Co.**, will be under the direction of W. D. Willes, according to L. A. Dixon Jr., vice-presi-

(*Continued on page* 236)

City of Chicago seeking bids for

Parking Meter Maintenance

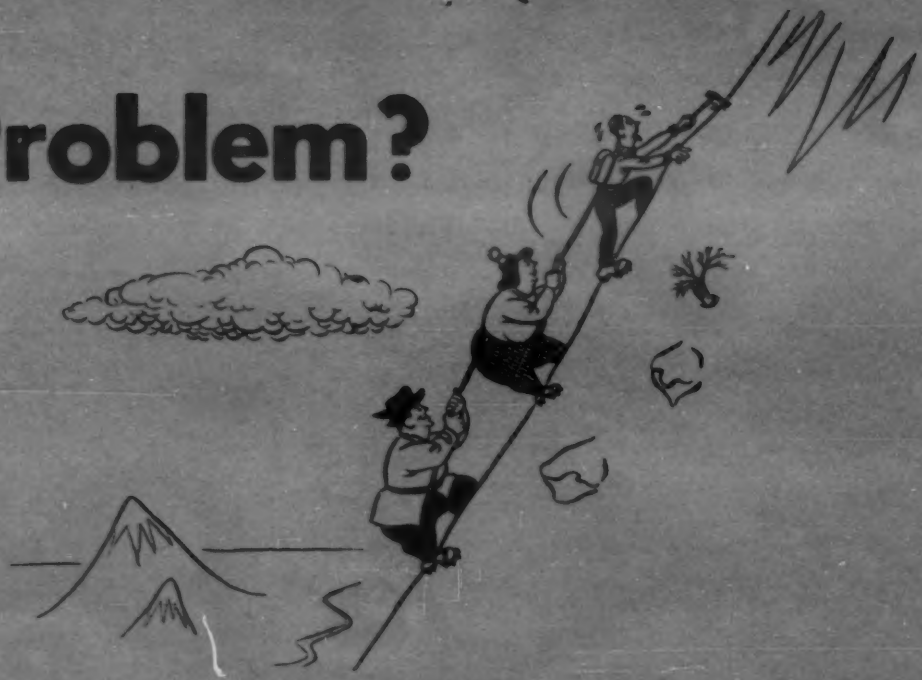
Sealed proposals will be received by the City of Chicago until 11 A.M., Central Standard Time, Wednesday, April 20, 1955 at Room 401, City Hall, Chicago, Illinois, at which time and place the Bids will be opened and read for furnishing Parking Meter inspection, maintenance and repair service required for use by the Bureau of Street Traffic and Parking of the Department of Streets and Sanitation, City of Chicago, during the period beginning on or about May 1, 1955 and ending December 31, 1955.

It is estimated that the City will require inspection, maintenance and replacement service for approximately 29,000 meters during the contract period from on or about May 1, 1955 and ending December 31, 1955.

Proposals must be made upon blank forms of proposals contained in the contract documents and be addressed to the Department of Purchases, Contracts and Supplies, Room 401, City Hall, Chicago 2, Illinois, and be accompanied by cash, cashier's check, certified check or Comptroller's certificate of monies owed the Bidders, in the amount of $15,000.

Write, Wire or Phone—John F. Ward, Purchasing Agent, Room 400, City Hall, Chicago 2, Illinois, for bidding forms and specifications.

What's Your Problem?



If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 209 of your April 1955 issue, as circled below:

700	704	708	712	716	720	724	728	732
701	705	709	713	717	721	725	729	733
702	706	710	714	718	722	726	730	734
703	707	711	715	719	723	727	731	735

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

.....

Name: (Please Print).....

Title: .....

Address: .....

..... 4-55

Postage Will be Paid by Addressee

No Postage Stamp Necessary if Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 391, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

In A Stew

You can obtain manufacturers' literature by making use of these convenient Business Reply Cards! A quick easy way to get full details on products and services mentioned or advertised in this issue.

To THE AMERICAN CITY's Catalog Supply Department:

Please send literature on items numbered as follows, starting on page 33 of your April 1955 issue:

73	79	85	91	97	103	109	115	121	127	133	139
74	80	86	92	98	104	110	116	122	128	134	140
75	81	87	93	99	105	111	117	123	129	135	141
76	82	88	94	100	106	112	118	124	130	136	142
77	83	89	95	101	107	113	119	125	131	137	143
78	84	90	96	102	108	114	120	126	132	138	144

I would also like to receive manufacturers' booklets on .....

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Name: (Please Print) .....

Title: .....

Address: .....

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Postage Will be Paid by Addressee

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BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 201, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

THE FIRST AND ONLY PAINT THAT DRIES FASTER AND WEARS LONGER

SAFETY-LITE TRAFFIC COATING

ROAD TESTED AND APPROVED — A PRODUCT OF CONLUX PAINT CORP

DRIES IN 3 MINUTES

READY FOR TRAFFIC WITHIN 10 MINUTES

LOOKS BETTER—LONGER

- SAFETY-LITE TRAFFIC COATING is the finest traffic paint available and therefore economical to use from every standpoint.
- Due to its durability, quick-drying, and longer-lasting qualities, you save up to 50% on cost of labor and material.
- Excellent non-bleeding over asphalt.
- Dries to a tough mar-proof flexible film which expands and contracts with the surface without cracking or peeling.
- Water-proof, alkali-proof, and weather-proof.
- No need to wait for sunny, hot days for application as SAFETY-LITE TRAFFIC COATING may be applied at freezing to high temperatures as well as on extremely humid days, with excellent drying results.
- Covers solidly in one coat.
- Outwears ordinary traffic paints over 75% and therefore cuts costs by cutting repainting requirements.
- Contains specially treated abrasive pigments for greater road durability.

AVAILABLE IN
YELLOW OR WHITE
REFLECTORIZED OR PLAIN

CON-LUX PAINT CORPORATION
Metuchen, New Jersey

Gentlemen:

We would like to have more information about your new Safety-Lite Traffic Coating.

☐ Please send us literature and prices.

☐ Please have your representative call.

Name .....

Title .....

Address .....

City ..... Zone .... State .....

(*Continued from page* 234)

dent of the company's Meter and Valve Division. Mr. Willes is the former general manager of Nordstrom valve plants at Barberton, Ohio and Oakland, Calif. As new product manager, he will locate at the company's main offices in Pittsburgh, Pa.

E. S. Dulin, president of the **Byron Jackson Co.,** Los Angeles, Calif., manufacturers of centrifugal and turbine pumps, announces the election of four new vice-presidents. Norman D. Jesse will be in charge of the sales, service and branches of the company's Pump Division; Garth F. Nicolson will head the Oil Tool Division; Evan H. Sweet is new vice-president and counsel; and Ross Barrett will be in charge of public relations, advertising and market research.

In addition to his new executive duties as vice-president of **Taller & Cooper, Inc.,** Brooklyn, N. Y., Bernard J. Jacobson will continue to have charge of all of the company's sales promotion, customer relations and field service operations, according to Benjamin Cooper, president of the firm.

B. J. Jacobson

Seelye Stevenson Value & Knecht, New York consulting engineers, have admitted five new partners to the firm, Gilbert D. Fish, A. Roger Kelly, Erik B. J. Roos, Stephen D. Teetor, and Harold S. Woodward.

After 38 years with **The American Cast Iron Pipe Co.,** Birmingham, Ala., Charles Otto Hodges, president, announces his retirement. Mr. Hodges will be succeeded by Stephen D. Moxley, former executive vice-president. Others appointed to top positions at Acipco were Frank H. Coupland, new vice-president and works manager; Arnold J. Herrmann, vice-president and sales manager; Kenneth R. Daniel, vice-president and chief engineer; and A. E. Bowen, treasurer.

New assistant sales manager for **Joseph T. Ryerson & Son, Inc.,** is Charles H. Hallett, formerly connected with the company's Los Angeles steel service plant. Mr. Hallett will locate at Ryerson's main plant in Chicago, Ill.

More than 400 business and financial executives gathered at the Ambassador Hotel in Los Angeles recently for a testimonial dinner in honor of Lloyd Logsdon, retiring vice-president and general manager of West Coast sales and plant operations for the **Mueller Co.,** Decatur, Ill. Mr. Logsdon has been with Mueller for the past 35 years.

Aloysius M. Tullo will head the newly established Harrison (N. J.) Division of the **Worthington Corp.,** reports Walther H. Feldmann, executive vice-president. The new general manager will be responsible for all phases of Harrison sales, engineering and manufacturing operations. New sales manager for the Division is Clarence K. Hood. George F. Habach is executive engineer; Max A. Heyman, works manager; Thomas F. Quinlan, comptroller; and Charles Schwalje, foundry manager. Another Worthington Division, also located at Harrison, will be headed by Vincent Gerbereux. This will be known as the new Standard Pumps Division.

Scheduled to assist Walter C. Robertson, vice-president of **Gar Wood Industries, Inc.,** New York City, is William L. Davies, former district representative for the Athey Products Corp.

A. C. Kraft succeeds J. B. Wilson as New York manager for the **Caterpillar Tractor Co.,** Peoria, Ill. Mr. Kraft is fresh from the firm's London office where he served as district representative. Mr. Wilson's new position is that of export manager for Caterpillar's Latin American division. D. F. Shinn, former Caterpillar district representative in Stockholm, moves to London as representative in the United Kingdom and Republic of Ireland. New district representative in the Scandinavian countries is C. R. Poor.

The new southeastern district office of **Standard Steel Works** at Spartanburg, S. C., will be headed by a new district manager, Leonard O. Carroll. The company's main office is located in North Kansas City, Mo.

A recent meeting of the board of directors of **The Chapman Valve Mfg. Co.,** Indian Orchard, Mass., saw the election of a new executive vice-president, David M. McIntosh, who was also re-appointed vice-president in charge of production. In addition, the company has a new vice-president in charge of sales, Frank A. Hunter.

Mack Trucks, Inc., New York City, has elected Theodore J. Zeller vice-president in charge of operations, according to P. O. Peterson, president of the firm. Mr. Zeller, who is also a director of a Mack subsidiary, will make his headquarters at the company's Allentown (Pa.) plant.

T. J. Zeller

A new general sales manager, Robert F. Lay, and a new assistant general sales manager, Grant C. Woodward, are announced by Stanley E. Johnson, Sr., vice-president and director of sales for **The Cooper-Bessemer Corp.,** Mount Vernon, Ohio.

Six executives of **The Heil Co.,** Milwaukee, Wis., were made vice-presidents recently, according to Joseph F. Heil, president of the firm. They are William E. Curran, assistant to the president; John G. Eimermann, financial and accounting officer; Len W. Conrad, general works manager; Robert G. MacDonald, director of industrial relations; John D. Barclay, general sales manager; and Allan E. Magee, company attorney. In addition, the company has appointed a new district sales representative, Maurice Hanley, for its Kansas City office.

A veteran of 25 years in the water meter field, Ross J. Burns has been named water meter sales manager for the **Badger Meter Mfg. Co.,** Milwaukee, Wis. Mr. Burns last served Badger as western sales manager with offices in Los Angeles, Calif. He will be replaced on the West Coast by John Way, former sales manager for the Contractor's Equipment and Supply Co.

R. J. Burns

Two new divisional sales managers have been appointed by the **Huber-Warco Co.,** Marion, Ohio. Glenn N. Porter will direct the company's sales efforts in the eastern part of the United States and Canada, and in Cuba. Joseph D. Whalen will have charge of the western half of Canada and the United States, Mexico, Hawaii and Alaska.

From the **Enterprise Engine & Machinery Co.,** San Francisco, Calif., comes news of four appointments in the company's sales organization. Dale W. Blanton is manager of contract engineering; Robert A. Thompson, senior contract engineer; George Heuer, contract engineer; and Austin B. Crouchley, sales engineer in the company's New York office. Enterprise Engine & Machinery is a subsidiary of the General Metals Corp.

The American Institute of Consulting Engineers, New York City, has elected a new president, Francis S. Friel. Mr. Friel is president of Albright & Friel Inc., Philadelphia consulting engineers.

As new district lighting manager for the **Line Material Co.,** Milwaukee, Wis., Dean W. Morrill will cover the company's Central, North Central, Mountain States, West Coast and Southwest divisions, according to S. Standley, manager of L-M lighting sales. A new lighting engineer in L-M's West Coast division, Charles C. Allen, will represent the company in southern California.

Arthur J. Laack has been appointed new advertising and sales promotion manager of the **Four Wheel Drive Auto Co.,** Clintonville, Wis. He succeeds Arthur J. Danley, who was recently promoted to public relations director. The company also announces a new domestic sales manager, Reuben C. Taylor, Jr. FWD's former domestic sales manager, H. G. Engel, has been named special accounts manager.

Wanted:

Smoke Abatement Engineer

Salary Open

Apply to:
Mr. Joe L. Greenlee
Personnel Manager
Room 303, City Hall Bldg.
Charlotte, North Carolina

Utilities Superintendent Wanted

Applications are being sought for the position of Utilities Superintendent in the City of New Ulm, Minnesota. The Public Utilities Commission operates an electric generating plant with steam turbines and supplies high pressure and low pressure steam service, operates electric, water and gas distribution systems, and a Sewage Disposal plant. The applicant should either hold a Chief Engineer's license in the State of Minnesota or be able to qualify for the same.

Applicants should give full details concerning education, experience, and salary expected. Further information concerning the City will be furnished to applicants upon request. Address applications or requests for information to Philip L. White, City Manager, Public Utilities Commission, New Ulm, Minnesota.

How a Sherman Power Digger Does More Work in Less Time with No Standby Equipment

Nearly every department in the city of Hopkins, Minnesota, finds a use for this versatile Sherman Power Digger.

The Water Department uses the machine when cutting off discontinued service lines at the main. They dig a hole in the street (usually blacktop) 3′ wide by 6′ long by 8′ deep. The hole must be plumbwalled for minimum replacement of paving. This operation used to tie up a truck all day, an air compressor half a day, and two men with hand tools, a full day.

Using a Sherman Power Digger, they now do *three* such jobs in one day, with only one man on the digger, no truck, and no compressor, except for concrete pavement. The job goes faster because they can dig the hole, shut off the line, and backfill before the walls begin to cave. Local soil conditions formerly required cribbing many of these excavations.

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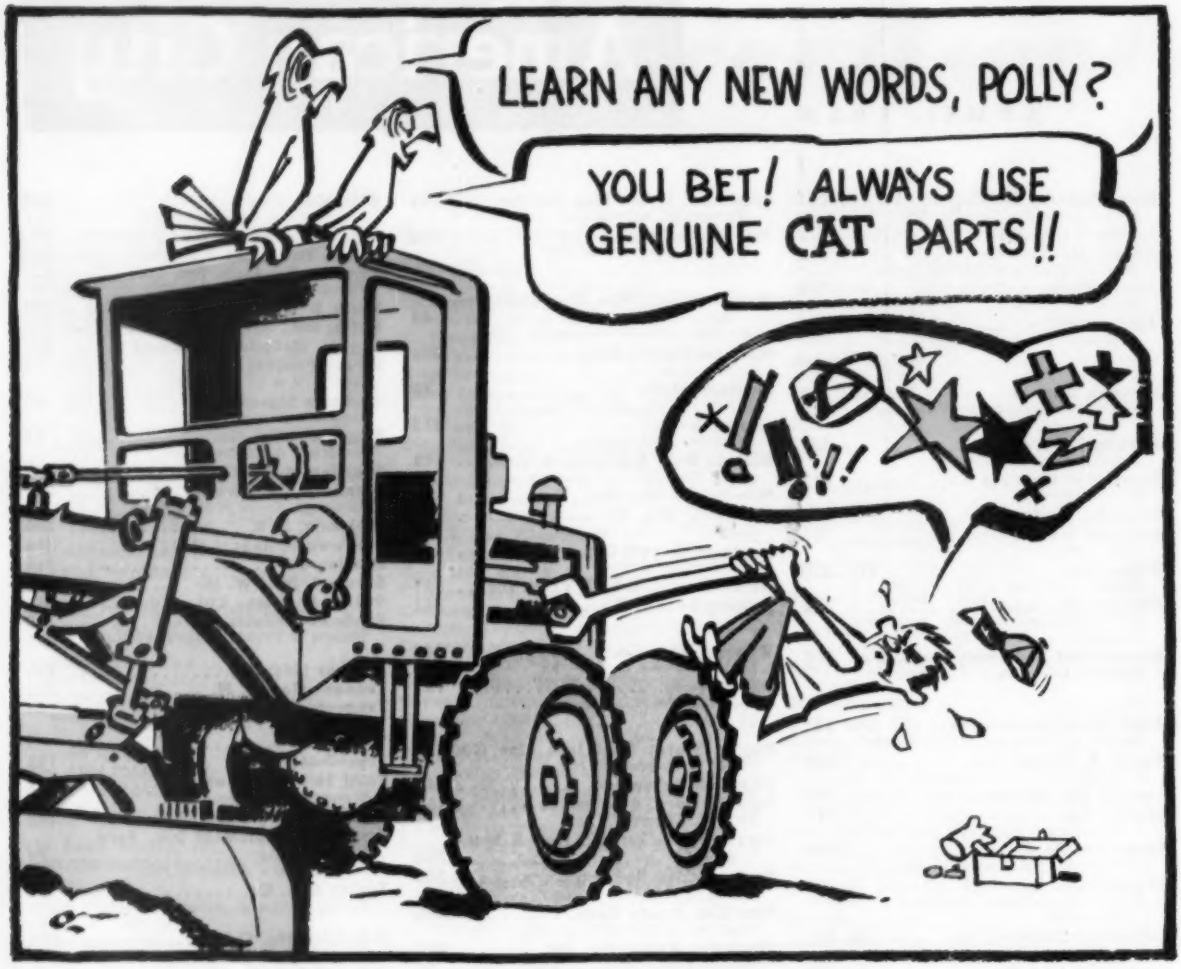

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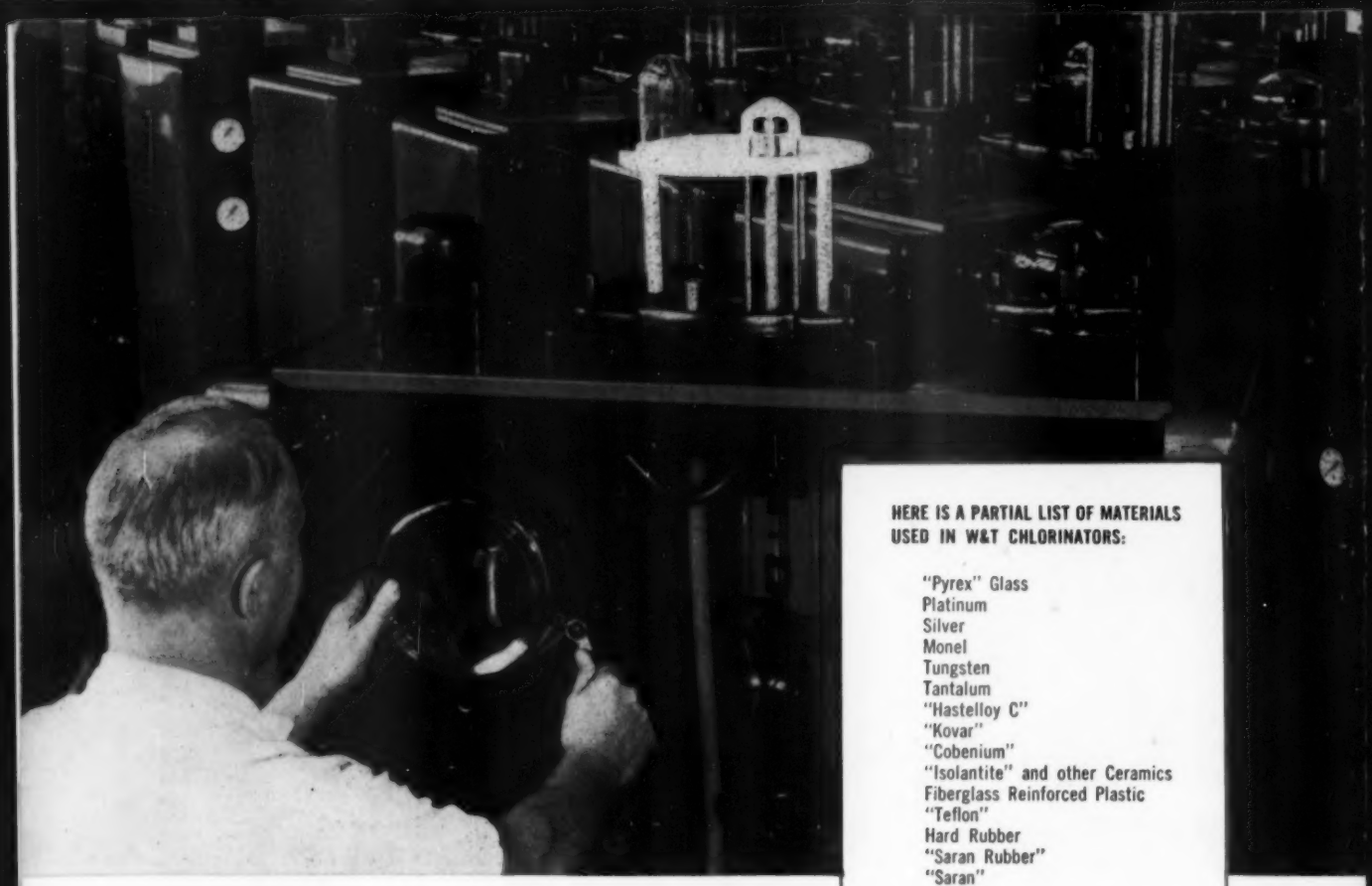

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Silver
Monel
Tungsten
Tantalum
"Hastelloy C"
"Kovar"
"Cobenium"
"Isolantite" and other Ceramics
Fiberglass Reinforced Plastic
"Teflon"
Hard Rubber
"Saran Rubber"
"Saran"
"Kel-F"
"Kralastic"
"Hypalon"
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